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JAMES D. M...

BILL OF COMPLAINT

IN THE SUPREME COURT OF THE UNITED STATES

ORIGINAL, NO. ~~25~~ ~~16~~ ~~17~~ ~~15~~ ~~14~~ 4

THE STATE OF NEW MEXICO

vs.

THE STATE OF COLORADO

OCTAVIANO A. LARRAZOLO,
FRANK W. CLANCY,
Counsel for Complainant.

IN THE SUPREME COURT OF THE UNITED STATES

ORIGINAL NO.

THE STATE OF NEW MEXICO

vs.

THE STATE OF COLORADO

To the Honorables, the Chief Justice and Associate Justices of the Supreme Court of the United States:

The State of New Mexico, by Octaviano A. Larrazolo and Frank W. Clancy, Special Counsel, employed to represent the said State in the prosecution of this suit, presents this, its bill of complaint, against the State of Colorado and respectfully complaining shows unto this honorable court, that the ground upon which the court's jurisdiction of the matters hereinafter set forth, depends, is that this bill of complaint sets out a controversy between the said two States of which this court has original jurisdiction.

Your orator further shows that by the legislation of Congress under which the State of Colorado was admitted into the Union of States, and by the constitution of the State of New Mexico under which the said State of New Mexico was admitted into the Union of States, the southern boundary line of said State of Colorado and the northern boundary line of the State of New Mexicoextends along the 37th parallel of north latitude from the intersection of said parallel with the 32nd meridian of longitude west from Washington in an easterly direction to the point where said parallel of latitude intersects the 103rd meridian of longitude west from Greenwich.

Your orator further shows that on the 7th day of July, 1902, Howard B. Carpenter, a United States surveyor, entered into a contract with the United States to well, truly and faithfully re-survey, re-establish and re-mark the boundary line between Colorado and the territories of New Mexico and Ok

lahoma, the same being that portion of the parallel of thirty seven degrees of north latitude lying between the 25th and 32nd degrees of longitude west from Washington, and in pursuance of said contract and the instructions given to him by the acting Commissioner of the General Land Office, the said Carpenter did thereafter proceed to re-survey, re-establish and re-mark the said boundary line as will appear by the record and field notes of his work, a copy of which together with a copy of said instructions from the acting commissioner of the General Land Office, so far as that record and field notes cover that portion of the 37th parallel of north latitude which constitutes the boundary between the States of Colorado and New Mexico, is hereto attached and made a part hereof, which field notes, having been examined and found correct, were approved by the commissioner of the General Land Office, as appears by his certificate to that effect attached to the said field notes hereinbefore referred to.

Your orator further shows that the line surveyed and established by the said Carpenter as shown by his field notes is the true and correct boundary line between the said two states, but that the defendant State of Colorado in disregard of that boundary line and not respecting the rights of your orator has usurped jurisdiction over a considerable amount of territory south of said line and has unlawfully levied and collected taxes upon property south of said line and through its courts has attempted to exercise both civil and criminal jurisdiction over persons and property lying south of said line; but your orator further shows that it is unable to state how far to the south of the said boundary line the State of Colorado claims jurisdiction, which acts, doings, pretenses and claims of the State of Colorado are contrary to equity and good conscience and tend to the manifest wrong, injury and oppression of your orator and of its citizens and owners of property within its boundaries.

Wherefore, being without remedy except by an original proceeding in this honorable court, where matters of this nature are, under the constitution of the United States, properly cognizable and relievable, and to the end that the State of Colorado full, true and perfect answer may make to all and singular the matters aforesaid, (but not under oath, answer under oath being hereby expressly waived), as fully and particularly as if the same were here repeated and the defendant distinct

ly interrogated thereto, and that the said boundary line surveyed, established and marked by the said Howard B. Carpenter as set out and shown in the field notes of his survey, a copy of which is attached hereto as hereinbefore stated, be by this honorable court decreed to be the true boundary line between the States of New Mexico and the State of Colorado along the parallel of 37 degrees of north latitude, and that your orator may have such further or other relief as the nature of the case may require and to the court shall seem meet.

May it please the court to grant unto your orator such process issuing out of and under the seal of this honorable court as may be appropriate to require the said defendant, the State of Colorado to be and appear before this court, then and there to answer the said premises and to abide by and perform such order and decree as to the court shall seem meet and proper.

STATE OF NEW MEXICO,
By Octaviano A. Larrazolo,
and Frank W. Clancy,
Its Special Counsel.

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE

SPECIAL INSTRUCTIONS FOR RESURVEY
OF
SOUTH BOUNDARY OF COLORADO

Washington, D. C. July 7th, 1902.

Mr. Howard B. Carpenter,
U. S. Surveyor,
Kenwood, California.

Sir:

Having entered into a contract on the 7th day of July, 1902, with the United States, to "well, truly and faithfully re-survey, re-establish and re-mark the boundary line between COLORADO and the Territories of NEW MEXICO and OKLAHOMA, the same being that portion of the parallel of thirty-seven degrees of North latitude lying between the 25th

and 32nd degrees of West longitude, for Washington, "you will be governed in the execution in the execution of said resurvey by the terms of your contract and the manual of instructions of 1902, wherever applicable and these special instructions.

You will begin your re-survey by proceeding to a point not less than 20 miles east of the corner established and recognized as the SW corner of Colorado near which point you will select a convenient and suitable site for an astronomical station and take careful obser vations for latitude. When full and accurate determinations are accomplished you will measure to the parallel erect an astronomical monument of the size and material prescribed in your contract. From this monument you will run a random line due west and note the falling upon the said SW corner, after which you will correct your line back as a true line setting mile corners as prescribed in the contract.

Thence you will proceed east along the said parallel, running your line by the usual method of setting off tangents to the parallel based upon careful meridional observations. You will verify the establishment of the parallel by observations for latitude taken upon stars north and south of the zenith. The observations for this purpose will be taken from at least eight astronomical stations along the line, the 1st at the 20-mile point as above instructed, the remainder at intervals of about 50 miles, and an equal number of astronomical monuments erected. These monuments will consist of a shaft of stone at least 6 feet in length and 12 inches in thickness, dressed on each face 6 inches to receive the inscriptions which will be as follows:

On the E face 37 N. L. and the year.
On the N face Colo.
On the S face N. Mex. or Okla.
On the W face the dist. from the Western extremity to the monument.

These astronomical monuments may stand in place of the eight-mile corners if practicable to place them.

When observations for latitude are taken at astronomical stations, and the results shows that the position of your line is in error in excess of three seconds of arc, the line should be corrected back so as to bring it within this limit.

In the event of the above number of astronomical monu-

ments being established along the line, the eighth monument will be set at a theoretical distance of 17 miles west of the eastern extremity of the line on the SE corner of Colorado. From this monument you will run a random line to the recognized corner to Colorado and Kansas, and if falling be less than 3 chains you will correct the line back connecting the said monument with the said corner by a straight line.

Should the closing be in excess of 3 chains, you will set a closing corner on the west boundary line of Kansas, or on the prolongation thereof, marking the same CC with appropriate letters, for this closing corner which will stand for the SE corner of Colorado, a dressed stone should be provided. It should be 3 ft. in length, 10 inches square and be inscribed, if set to the north of the riginal corner,

On the NW face Col.
On the SW face Okla.
On the SE face C C.
On the NE face Kan.,

and if set to the south of the original corner, the same markings except that the letters KAN will be omitted.

You are required to exercise the utmost care in the determination of meridians by repeated observations, and the projection therefrom of tangents to the parallel, the mean of not less than three careful and complete observations must be taken in determining such alignments. Due care must be taken in the extension of tangents, by reversion of instruments and other means in ordinary use for counteracting the growth of accumulative errors, and lines must be clear of ordinary obstruction to correct observations.

Each corner will consist of a wrought iron pipe three inches in diameter, 4 ft. long, made of 1/8 inch iron, having two flanges opposite each other at the bottom, each projecting 3 inches, the pipe to be surmounted by a cap or head of brass 3½ inches in diameter, having a sleeve of about an inch in length which will admit of the insertion of the pipe, the head to be secured to the pipe by a bolt 1/4 inch in diameter passing through openings in the pipe and sleeve and held in place by a nut 3/16 inches in thickness, the head of the bolt to be hammered after the nut is in place in order to prevent its slipping off, or its forcible removal. The brass cap will have letters COLO. and N. M. (or OKLA. when Oklahoma is reached), cast upon its surface, and between these two words the num-

ber of the mile corner is stamped. The pipe will be planted 2 feet in the ground and have the earth firmly tamped around it, so as to secure its rigidity and prevent withdrawal. A mound of earth or stone or both earth and stone will be built around the pipe 1 1/2 feet high, and 3 ft. diameter, and pits will be dug 6 ft. distant, N. S. E. and W. 36 inches square 18 inches deep; corners are to be further witnessed by trees when trees over 5 inches in diameter are found within 5 chains of the corner, four trees to each corner will be taken where this number can be found within limits. They will be marked with the letters COLO when north of line, and N. M. or OKL. when south of the line, together with the number of mile corner which they witness, and the letters B. T.

Bearing objects when available within 5 chains—such as a cliff or wall—will be taken, the course and distance ascertained, and they will be marked with a cross, together with the letters COLO. N. M. as the case may be, the number of the mile and the letters B. O. In case of witness corners the same methods will be followed and the markings will have in addition the letters W. C.

In triangulation work if done by the ordinary engineer's transit, repetitions of angles should be made in opposite directions in order to eliminate as far as possible, errors from clamp and axis movements. The telescope should be inverted for half the repetitions to avoid errors arising from the line of sight not being perpendicular to the horizontal axis, and from the horizontal axis not being perpendicular to the vertical axis.

Measurements will be made by either chaining or by stadia-rods, when by the former, two sets of chainmen operating independently of each other will be employed.

This method will be used on level ground where long sights are obtained. Stadia measurements may be taken when mountainous and rugged ground is encountered.

Gunter's steel chain with brazen links, or a steel tape may be used in chaining. A standard chain or tape should be carried and used only for comparison with the field chains which should be tested daily.

In measuring distances by stadia the errors made in reading the rod, if it be properly graduated, will be from reading the position of the wires, and accuracy is further affected by the condition of the atmosphere.

On inclined sights the distance read on the rod will be reduced to the horizontal by proper tables or diagrams, and when the atmosphere is hazy or unsteady from the effects of heat, care should be taken to shorten up the sights. The error of closure should not be greater than one in 500.

Offset angles to the parallel must be made with accuracy, and where the offset distances exceed one chain, they shall be twice measured as in the case of the tangents.

Where by reason of some peculiarity or irregularity of the surface, a mile corner or monument cannot be established in proper position, it will be erected at some suitable advanced point on the line, its inscribed distance from the true point made to correspond, and in so placing it preference should be given a safe as well as a conspicuous point near a pass, road, or river crossing.

Offsets and bases for triangulations will be measured with great care and the requirements of the manual.

You are required to provide yourself with suitable equipments and means of obtaining supplies adequate to a continuous prosecution of the work, and the ordinary wants of your employes. You will associate with yourself an astronomer who has had field experience in the establishment of similar boundary lines, and who can be relied upon to furnish to you reliable and accurate data, for the proper location of points on the 37th parallel.

You will provide yourself with such astronomical and field instruments of approved construction and accuracy of adjustment as may be necessary in accurately determining meridians, parallels of latitude, tangent extensions and triangulations. This office will provide a zenith telescope for your use on this survey, which instrument will be returned to this office in good order at the determination of the field work. In the transportation of said instruments and their various removals on the line, no pains must be spared tending to their preservation in the best possible adjustment and working order.

Examinations for adjustment of the instruments in use must be made at the commencement of each day's work, weather permitting, necessary corrections made and a record of such examinations entered in the field notes under proper dates.

Notes of position and sketches of all important topo-

graphical features on and in the vicinity of the boundary, must be taken as the survey progresses, and such conspicuous distant point on the boundary.

Where lines of public surveys have been closed upon the Darling line, you will not attempt to eradicate the closing corners, but will endeavor to find and obliterate all evidences of the mile corners re-established by subdividing and other deputy surveyors in restoring the position of the Darling line.

You will, however, leave standing the monuments now standing on the line between Colorado and Oklahoma, except those set by Darling. All evidences of corners or monuments set by Darling on south boundary of Colorado will be carefully obliterated.

Upon completion of the survey in the field, you will prepare triplicate copies of the field and astronomical notes thereof, properly indexed, headed, typewritten and securely bound, with the preliminary and final oaths.

You will also prepare in triplicate upon mounted paper, upon a scale of two miles to an inch, a neatly and clearly executed diagram or map of the survey, showing the boundary line and the topography thereon. The duplicate and triplicate may be photographs of the original, but on the same scale and be mounted.

Very respectfully,
(Signed) W. A. RICHARDS,
Acting Commissioner.

DEPARTMENT OF THE INTERIOR,
C. L. D. B.

GENERAL LAND OFFICE.

WASHINGTON.

Washington, D. C., Sept. 9, 1903.

Mr. H. B. Carpenter,
U. S. Surveyor,
Cheyenne, Wyoming.

Dear Sir:

The report of F. M. Johnson, Examiner of Surveys, of his examination of your re-survey of the south boundary of

Colorado under your contract, dated July 7th, 1902, has been received. This report shows that you have made a good survey of this line, that the mile corners are of the character required by the contract and properly set and witnessed.

Between the 5th and 6th astronomical stations there seems to be such a deflection from a true east line as would indicate that one of these monuments was not upon the 37th parallel of latitude.

In order to test their location, Mr. Arthur D. Kidder, an Examiner of Surveys of this office, was instructed to go to your astronomical station No. 6, and by astronomical observations determine its location as to latitude. This he has done, with the result that the monument at this station was found to be 3″ of arc north of the 37th parallel. As this is exactly the closing limit allowed upon this survey, it is surmised that you placed this monument where it is through a misunderstanding of your instructions.

It was the intention of this office that the monuments erected at astronomical stations should be placed on the 37th parallel, as determined by the observations, and that the line should close upon them with 3″ of arc.

If it is true that you placed the monument where your line fell, although that may have been within the closing limit, but not upon the parallel, it will be necessary for you to return to the field and place any such monuments so located upon the parallel. While this will leave your line within the closing limits, it is suggested that at least four mile corners, both east and west of monument No. 6, should be corrected in order to avoid the angle that would otherwise exist at this point.

If it is necessary to change the location of other monuments, please correct the line on either side of them in the same manner, the number of mile corners moved being in proportion to the distance which the monument is moved compared with monument No. 6.

Mr. Kidder will test the latitude of the monument at station No. 5, and endeavor to determine the cause of the deflection of the line between that monument and No. 6.

Mr. Johnson's report shows that the eastern terminus of your line is at a point 40.34 chs., north of the southwestern corner of Kansas as now established.

As these points should be coincident, it is important that

the terminus of your line should be upon the 37th parallel as near as it is possible to fix it. That this may be done, Mr. Kidder has been instructed to proceed to that point and determine its latitude. If it should appear as a result of his observations that your terminal monument is not upon the 37th parallel, I have to request that you place it there and make such corrections of the line east of that point, as may be necessary. Mr. Kidder is now in the field and when this reaches you, should be at the 5th monument observing for latitude. His temporary address while there will be Trinidad. I suggest that you join him as soon as convenient. Any further instructions that may be necessary as the result of his examination will be furnished by telegraph.

I regret the necessity for your returning to the field and feel that you are being called upon to do more than your contract requires, but your work has heretofore been of such a high character and this is so good that I feel that you would rather be imposed upon to this extent than have this survey marred by these slight defects.

Very truly yours,
(Signed) W. A. RICHARDS,
Commissioner.

NAMES AND DUTIES OF ASSISTANTS.

1902.

Augustus MacConnell	Assistant Astronomer
L. B. Neighbor	Transitman
E. Potter Lockwood	Chainman
Walter Stone	Chainman
Ernest G. Spinney	Chainman
Linus Olson	Chainman
C. D. Carpenter	Moundman
J. W. Miller	Moundman
Charles Windquist	Moundman
Grover C. Bowman	Axman
O. J. Bowman	Axman
Wm. D. Skinner	Rodman
J. L. Wentz	Flagman
J. G. Myers	Flagman
Oscar McClellan	Master of Transportation
C. W. Hooper	Photographer

Arthur L. Broadhead	Teamster
Chas. H. Spencer	Chief Packer
R. B. Maupin	Packer
Sam Kinsey	Packer
C. M. Holiday	Cook
W. D. Saylor	Cook

NAMES AND DUTIES OF ASSISTANTS.

1903.

Oscar McClellan	Transitman
Walter Stone	Chainman
William L. Horton	Chainman
Clarence Holliday	Chainman
Potter Lockwood	Chainman
C. D. Carpenter	Moundman
Charles Windquist	Moundman
Linus Olson	Moundman
Harry Weiner	Axman
Silas S. Weiner	Axman
E. P. Blanchard	Rodman
Fred F. Lockwood	Flagman
William A. Pinckard	Flagman
Charles H. Spencer	Master of Transportation
Arthur Spencer	Packer
Clarence Broadhead	Cook
E. P. Blanchard	Chainman, October, 1903
F. E. Wright	Chainman
Andrew Ferrara	Moundman

1902.

PRELIMINARY OATHS OF ASSISTANTS.

I Augustus MacConnell; do solemnly swear that I will well and faithfully perform the duties of Assistant Astronomer in the establishment of Latitude 37° degrees North on the Re-survey of the South Boundary of the State of Colorado.

(Signed) AUGUSTUS MacCONNEL.

(*SEAL*) Assistant Astronomer.

Subscribed and sworn to before me this 17th day of September, 1902.

(Signed) HENRY BAUER,
Notary Public.

I, Lambert B. Neighbor, do solemnly swear that I will well and faithfully perform the duties of Transitman according to the instructions given me and to the best of my skill and ability in the Re-survey of the South Boundary of the State of Colorado.

(Signed) LAMBERT B. NEIGHBOR,
(*SEAL*) Transitman.

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

We, Potter Lockwood, Ernest G. Spinney, Walter Stone and Linus Olson, do solemnly swear that we will well and faithfully execute the duties of chainman; that we will level the chain on even and uneven ground, and plumb the tally pins either by sticking or dropping same; that we will report the true distances to all notable objects and the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with the instructions given us, in the re-survey of the South Boundary of the State of Colorado.

(Signed) POTTER LOCKWOOD, Chainman.
ERNEST G. SPINNEY, Chainman.
WALTER STONE, Chainman.
(*SEAL*) LINUS OLSON, Chainman.

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

We Charles D. Carpenter, J. W. Miller and Charles Windquist do solemnly swear that we will well and truly perform the duties of moundmen in the establishment of corners, according to the instructions given us, to the best of our ability

and skill, in the re-survey of the South Boundary of the State of Colorado.

(Signed) CHARLES D. CARPENTER, Moundman.
J. W. MILLER, Moundman.
his
CHARLES (X) WINDQUIST, Moundman.
(SEAL) mark

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

We, O. J. Bowman and Grover C. Bowman, do solemnly swear that we will well and truly perform the duties of axman, in the establishment of corners and other duties, according to the instructions given us, and to the best of our skill and ability, in the re-survey of the South Boundary of the State of Colorado.

(Signed) O. J. BOWMAN, Axman.
(SEAL) G. C. BOWMAN, Axman.

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

I, Wm. D. Skinner, do solemnly swear that I will faithfully perform the duties of Rodman according to the instructions given me, and to the best of my skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) Wm. D. SKINNER,
(SEAL) Rodman.

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

We, J. G. Myers and J. L. Wentz, do solemnly swear that we will well and truly perform the duties of Flagman according to instructions given us, and to the best of our skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) J. G. MYERS, Flagman.
(SEAL) J. L. WENTZ, Flagman.

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

1903.

PRELIMINARY OATHS OF ASSISTANTS.

I, Oscar McClellan, do solemnly swear that I will well and faithfully perform the duties of Transitman, according to the instructions given me and to the best of my skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) OSCAR McCLELLAN,
(*SEAL*) Transitman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

We, Clarence Holliday, Potter Lockwood, W. L. Horton and Walter Stone, do solemnly swear that we will well and faithfully execute the duties of chainman; that we will level the chain on even and uneven ground and plumb the talley pins either by sticking or dropping the same; that we will report the true distances to all notable objects, and the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with instructions given us, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) C. E. HOLLIDAY, Chainman.
(*SEAL*) POTTER LOCKWOOD, Chainman.
W. L. HORTON, Chainman.
WALTER STONE, Chainman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

We, C. D. Carpenter, Charles Windquist and Lines Olson, solemnly swear that we will well and truly perform the duties of Moundmen, in the establishment of corners, according to

the instructions given us to the best of our skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) C. D. CARPENTER, Moundman.

His

(SEAL) CHARLES X WINDQUIST, Moundman.

Mark

LINUS OLSON, Moundman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

We, Silas S. Weimer and Harry Weimer, do solemnly swear that we will well and truly perform the duties of axman, in the establishment of corners, and other duties, according to the instructions given us, and to the best of our skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) SILAS S. WEIMER, Axman.

(SEAL) HARRY WEIMER, Axman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

I, Ed. P. Blanchard, do solemnly swear that I will faithfully perform the duties of Rodman, according to the instructions given me, and to the best of my skill and ability in the Re-survey of the South Boundary of the State of Colorado.

(Signed) ED. P. BLANCHARD,

(SEAL) Rodman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

We, Fred F. Lockwood and W. A. Pinckard, do solemnly swear that we will well and truly perform the duties of Flagmen, according to instructions given us, and to the best of our skill and ability in the Re-survey of the South Boundary of the State of Colorado.

(Signed) FRED F. LOCKWOOD, Flagman.

(SEAL) W. A. PINCKARD, Flagman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

We, Ed. P. Blanchard and F. E. Wright, do solemnly swear that we will well and faithfully execute the duties of chainmen; that we will level the chain on even and uneven ground, and plumb the tally pins, either by sticking or dropping the same; that we will report the true distances to all notable objects, and the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with the instructions given us, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) ED. P. BLANCHARD, Chainman.
F. E. WRIGHT, Chainman.

Subscribed and sworn to before me this 1st day of October, 1903.

(Signed) HOWARD B. CARPENTER,
U. S. Surveyor and Astronomer.

I, Andrew Ferrara, do solemnly swear that I will well and truly perform the duties of moundman in the establishment of corners, according to the instructions given me, to the best of my skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) ANDREW His X Mark FERRARA,
Moundman.

Subscribed and sworn to before me this 1st day of October, 1903.

(Signed) HOWARD B. CARPENTER,
U. S. Surveyor and Astronomer.

DESCRIPTION OF INSTRUMENTS.

Astronomical observations were made with a Wurdemann Zenith telescope, 25 ins. focal length and 2.1 ins. aperture.

This instrument was loaned me by the Department of the Interior.

The line was projected with a transit made for me especially for this line by Young and Sons of Philadelphia, Pa.

It has a six-inch horizontal limb graduated to 30′ of arc, and reading to single minutes by two double verniers placed opposite to each other. The vertical limb is five inches in diameter graduated to 30′ of arc and reading by vernier to single minutes.

The instrument also has the Smith Solar attachment. The telescope is provided with stadia wires placed at the ratio of 1 in 100.

Two Philadelphia levelling rods 7 ft. long and sliding to 13 ft. graduated to feet, tenths and hundredths, and reading by vernier on target to thousandths of a foot.

Two steel tapes 1-4 inch wide and 66 ft. or 1 chain in length, graduated to links.

One standard Chesterman Steel tape for comparison and adjustment of measuring tapes

Two rod levels or plumb levels, used for guides in holding the rod vertical.

Two Aneroid Barometers, one 2 3-4 inch, with thermometer and one 2 inch.

Two Chronometers belonging to Mr. MacConnel, Hiatt No. 1051, Sidereal time, and Barraud No. 333 mean time.

Pursuant to instructions received from the Hon. the Commissioner of the General Land Office, Binger Hermann bearing date Washington, D. C., July 7th, 1902, I proceeded to Mancos, Colorado, perfected my organization of the astronomical corps and went to a point on the line between Colo. and N. Mex., as established by E. N. Darling in 1868; the point being near his 313th mile and at his astronomical monument No. 10, which is a block of sandstone about 10x15 ft. and 10 ft. high, marked Colorado on N., 1868 on E., N. Mex. on S. and 37 N. L. on W. from which another block of sandstone bears N. 29 W. 130 lks. dist. marked Colorado 1868.

I destroyed the marks on these stones. The corner on the rolling sand plain south of the Mancos River at the foot of rock cliffs about 600 ft. high.

My instructions direct me to "proceed to a point not less than 20 miles E. of the corner established and recognized as the SW. cor. of Colorado, near which point you will select a convenient and suitable site for an astronomical station; and take careful observations for latitude." It was found to be impracticable to establish the astronomical station

further east than the Darling Astronomical Monument as it would place said station either in a deep canon subject to down currents of air or upon a high mesa the nearly perpendicular walls of which rise to a height of about 600 ft., making it impracticable to transport the Zenith telescope up the cliffs.

Astronomical Station No. 1 was established in open rolling country about two miles south of the Mancos River to the west and near the foot of cliffs of rock about 600 ft. high. The Darling Astronomical monument No. 10 bears S. 81° E. 11.51 chs. dist.

Set the iron pier for the Zenith telescope at this point and took observations during the nights of Sept. 21st, 22nd and 23rd, 1902.

Found the latitude of this point to be 36° 59' 53.16".

October 6th, 1902. Reached Astronomical Station No. 1 with the line party. Examined and adjusted the new Young and Son's transit, tested the tapes and stadia rods and put all tools and instruments in perfect adjustment.

At 6h 29m P. M., l. m.t. I observe Polaris at eastern elongation and mark a point in the line thus found on a plug driven in the ground about 12 chs. N. of my station, Oct. 6th, 1902.

Oct. 7th, 1902 at 8h A. M. I lay off the azimuth of Polaris 1° 31.1' to the W. and mark a point in the true meridian thus found on a plug driven in the ground about 12 chs. N. of my station. The magnetic bearing of said true meridian is N. 14° 06' W. which gives the magnetic declination 14° 06' E.

I now run N. on this meridian 19.48 chs. to a point on the 37th parallel of N. Lat., determined by astronomical observation of Sept. 21st to 24th last.

From this point I lay off an angle from the meridian of 90° to the W. for the tangent to the parallel. In each of these observations and the subsequent turning of angles the mean of four sights was taken reversing the instrument at each sight.

Thence I run W. on a random line making the proper offsets N. to the parallel at the end of each mile, and at 16 miles and 70.85 chs. I intersect a meridian that passes through the point known as "The Four Corners," it being the SW. cor. of the State of Colorado, the NW. cor of the Territory of New Mexico, the NE cor. of the Territory of Arizona, and

the SE. cor of the State of Utah, and being identical with the point closed upon at the terminus of the Boundary line between the State of Utah and the Territory of Arizona recently established by me. This cor. consists of a pile of stone in the center of which is the lower part of the corner stone 7x7 ins. firmly imbedded in the ground.

The upper part of this stone has been broken off since my visit to this corner June 29th, 1901. The fragments are still here and most of the marks are still visible upon them.

Altitude 5500 ft.
Temperature 60°.
The bearings are as follows:
Chimney Rock on the Latra Mts. bears N. 45° 40′ E. about twenty miles distant.
Darling's Peak on the Latra Mts. bears N. 36° 53′ E.
Wilson's Peak (Ship Rock) bears S. 28° 12′ E.
NW. point of Sierra Carriso bears S. 54° 00′ W.
Conical point on mesa bears N. 37° 20′ W.
Conical point on N. end of this mesa bears N. 52° 20′ E. 28.65 chs. distant.

Said cor. is 4.45 chs. S. of the intersection with my tangent and as the offset to the 37th parallel is 2.18 chs. N. of the tangent at this point it shows a falling of 6.63 chs. S. of the parallel. This answers to a correction of 40 lks. per mile in order to strike the parallel at a point 20 miles E. and gives the course of the true line N. 89° 46′ E.

Oct. 9th at 6h 17m P. M., l.m.t. I observe Polaris at eastern elongation at "The Four Corners," and mark a point in this line on a stone about 15 chs. N. of my station.

Oct. 9th, 1902.

Oct. 10th, 1902, I examine the transit and find it in perfect adjustment, compare the steel tapes with the standard and find them of correct length.

At 7h 30m A. M. I lay off the azimuth of Polaris 1° 31.1′ to the W. and mark a point on the true meridian thus determined on a stone about 15 chs. N. of my station.

The magnetic bearing of the said true meridian is N. 14° 08′ W. this gives the magnetic declination 14° 08′ E.

Thence I run on the

——1st mile——

ALTITUDE	CHS.	
5500 ft.		N. 89° 46' E. on the true line Across a flat mesa covered with black lave rock.
	18.00	East edge of mesa bears N. and S. ascend rocky volcanic ridge bears N. and S.
5600 ft.	20.88	Top of ridge about 100 ft. high, bears N. and S., descend over broken volcanic rock.
	42.00	Foot of ridge about 450 ft. below top. Enter San Juan Valley bears NW., and SE. thence over rolling sandy plain.
		I find that the 1st mile cor. will fall in bend of San Juan River. Therefore, difference between measurements of 74.00 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 74.03 chs.
		By 2nd set 73.97 chs. the mean of which is
5000 ft.	74.00	I set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 4 ins. in the ground to bed rock for 1st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on the S. and O. 925M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable. No bearings.
		This cor. stands on the left bank of the San Juan River on a rock ledge about 25 ft. above the water, bank bears NW. and SE. about 10 chs. then NE.
		Altitude 5000 ft.
		Temperature 80°.
	75.23	W bank of San Juan River, course from NE. to NW. Stadis measurement across bend of river.
		The Stadia wires in the instrument are placed at ratio of 1 to 100 and by using either of them in connection with the horizontal cross wire equals 1 to 200. Stadia rods are graduated in feet, tenths and hun-

dredths, and reading by vernier on targets to thousandths of a foot. Rod held in a vertical position as indicated by rod level. The constant C. = focal length of lens which for this instrument is 1.15 ft. when the telescope is level and proportional when the telescope is elevated or depressed. See further explanation in report.

Angles of elevation marked +.

Angles of depression marked —.

Von Geldern's table of constants used for computing horizontal distances.

Angle 0°. Rod 11.49 double = 22.98 ft. 22.98 ft. + C. = 1.15=2299.13 ft.=34.83 chs. +75.23 chs.=110.06 chs—80.00 chs.=30.06 chs. on 2nd mile.

80.00 Falls in river inaccessible.

Land, mountainous and rolling.

Soil, rocky and sandy, 4th rate.

Vegetation, very scanty, a little grease wood.

——2nd mile——

N. 89° 46' E. on a true line.

30.06 On left bank of San Juan River, a rocky bank about 30 ft. high bears NE. and SW. Thence by tape measurement over gently rolling sandy plain.

Difference between measurements of 49.94 chs. by 2 sets of chainmen is 4 lks.; position of middle point

By 1st set 49.96 chs. by 2nd set 49.92 chs., the mean of which is 49.94 chs.

49.94 chs. + 30.06 chs. =

5040 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in rocky ground for 2nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 2M. stamped on the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable. No bearings.

Land rolling plain.

Soil, sandy and rocky.
Vegetation very scanty, some greasewood.
Altitude 5040 ft.
Temperature, 34°.

——3rd mile——

N. 89 46' E. on true line.

4.37 River bluff bears NW. and SE. about 40 ft. above river.
Stadia measurement,
Angle 3°—; Rod 9.76 ft. single = 976 ft.
Constant. 9973×9 76=973.35+C.=1.15=
974.50 ft.=14.76 chs.+4.37 chs.=19.13 chs.

17.00 Edge of water W. side of river, 1.50 chs. wide, course N. Water very muddy about 4/ft. deep, swift current.

19.13 Right bank of river, about 5 ft. high, bears N. and S. Enter cottonwood timber.

24.00 Leave timber, enter sagebrush flat, bears N. and S.

72.00 Leave sagebrush flat, bears NW. and SE. ascend.

74.00 Top of spur slope S. 50 ft. high, descend.
Difference between measurements of 65.24 chs. by 2 sets of chainmen is 21 lks. position of middle point
By 1st set 65.25 chs.
By 2nd set 65.23 chs, the mean of which is 65.24 chs.
65.24 chs. + 14.76 chs.

5050 ft. 80.00 Set an iron pipe 3 ins. dia. four feet long with flanges at the bottom 2 ft in the ground at foot or rocky slope for 3rd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 3M stamped in the center.
Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable. No bearings.
This cor. stands at foot of steep rocky slope on N. side of rocky canon.
Land, rolling river bottom and bluffs.
Soil, sandy and rocky, 2nd and 4th rate.

Vegetation, cottonwood timber and sage brush.
Alt. 5050 ft. Temp. 70°.

4th mile

N. 89° 46' E. on a true line.

2.00 Bottom of dry canon, course SW. ascend.

22.00 Top of bluff about 150 ft. high, bears S. about 6 chs., thence SW. and on N. side of line NE.

51.50 Deep narrow dry canon, course S. Coal cropping near bottom.

77.00 Top of spur slope S.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 80.03 chs.

By 2nd set 79.97 chs. the mean of which is

5250 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in ground for 4th mile cor. A brass cap on the top of the pipe has raised letters Colo. on the N., N.M. on the S., and 4M stamped in the center.
Dug pits 36x36x18 ins. N.S.E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Ship Rock bears S. 19° 30' E. about 20 miles dist.
Land, rough and broken.
Soil, rocky and sandy, 4th rate.
Vegetation, stunted greasewood.
Land underlaid with at least one vein of bituminous coal.
Alt. 5250 ft.
Temp. 70°.

5th mile

N. 89° 46' E. on the true line.
Descending over rolling land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point

By 1st set 80.02 chs.
By 2nd set 79.98 chs. the mean of which is

5150 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 5th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 5M. stamped in the center.
Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Chimney Rock on the Latra Mts. bears N. 34° 10′ E.
Land, rolling.
Soil, sandy, 3rd rate.
Vegetation, scanty, grass and greasewood.
Alt. 5150 ft.
Temp. 65°. Oct. 10th, 1902.

Oct. 11th. Examined the adjustments of the transit and compared the steel tapes with the standard; found everything in adjustment this morning.

6th mile

N. 89° 46′ E. on a true line.
Ascend gradually over rolling land.

10.70 Top of ridge bears N. and S. 50 lks. S. I find what I believe to be Darling's 325th mile cor. stone. A sandstone 16x10x6 ins. marked 325C. NM. 1868. This stone was lying on top of the ground and had probably been moved from its original position. No sign of mound or pits in this vicinity. I searched the country thoroughly on both sides of my line from the four corners back to Mr. Darling's astronomical monument No. 10 near his 313th mile cor, and this is the only object I succeeded in finding bearing any of the Darling marks except the said astronomical monument and its bearing rock. I destroyed the marks on this stone.
Descend.

5150 ft.	31.60	Top of bluff W. bank of Mancos River about 30 ft. high, bears N. and S. An ancient ruin of stone circular in shape bears S. about 7.00 chs.
5075 ft.	34.50	Bed of Mancos River, 50 lks. wide, water in holes strongly alkali, course S.
	37.60	Top of E. bank of river bears N. and S. about 30 ft. high thence across the sage brush flat.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks. position of middle point
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs; the mean of which is
5200 ft.	80.00	Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 6th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 6 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. from cor. 6 ft. dist. and raised a mound of earth 5 ft base 2 ft high around the post.
		Chimney Rock bears N. 30 14' E.
		Land, rolling.
		Soil, sand and clay 3rd rate.
		Vegetation, grass, sage and greasewood, some willow brush along the stream.
		Alt. 5200 ft.
		Temp. 65°.

—7th mile—

N. 89° 46' E. on a true line. Ascend.

	3.00	Foot of ridge bears N. and S. Leave Mancos River Valley.
	10.76	Top of spur slope N. Descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs; the mean of which is
5210 ft.	80.00	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for

7th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 7M stamped in the center, and raised a mound of stone 5 ft. base 2 ft. high around the post.
No bearings. Pits impracticable.
This cor. stands on NW. slope of gulch.
Land, rolling.
Soil, sandy and stony, 3rd rate.
Vegetation, grass and sage.
Alt. 5210 ft.
Temp. 60°.

8th mile

N. 89° 46′ E. on a true line.
Over rolling hills.

53.50 Bottom of dry ravine, course NW, ascend.

64.00 Brow of hill bears NE. and SE, descend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs. the mean of which is

5200 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 8th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 8M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
This cor. stands on S. slope of bad land hill on a coal cropping.
Land, rolling, bad land hills.
Soil, sandy and clay, 3rd rate.
Vegetation, grass and stunted sage, cactus and soapweed.
Alt. 5200 ft. Temp. 60°.

9th mile

N. 89° 46′ E. on a true line.
Descending.

18.00 Enter small valley, bears NW. and SE.

5150 ft. 25.00 Bottom of dry gulch banks 10 ft. high, course NW.

54.75 Leave valley bears NW. and S. Ascend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is

5380 ft. 80.00 Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 8th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S and 8 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around post.
Chimney Rock bears N. 19° 33' E.
Jackson's Butte bears N. 58° 25' E.
Land, rolling.
Soil, sandy and clay, 3rd rate.
Vegetation, grass and stunted sage.
Alt. 5380 ft.
Temp. 60°.

G

——10th mile——

N. 89° 46' E. on a true line.

2.00 Ascend high spur slope N., descend.

6.30 Brow of bluff bears N. and S.

23.00 Bottom of dry ravine course N., 100 ft deep, ascend.

5350 ft. 28.00 Point of spur slope N., descend.

5250 ft. 40.00 Bottom of dry ravine, course NW, ascend.

5350 ft. 48.00 On brow of bluff bears NW. and SE. Fossiliferous sandstone ledges with indications of coal underneath.

78.00 Dry gulch course N.
Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is

5250 ft. 80.00 Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 10th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 10 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around post.
This cor. stands on point of spur sloping N.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage, very scanty.
Alt. 5250 ft.
Temp. 56°.

—11th mile—
N. 89 46′ on a true line.
Descend.
5.00 Dry gulch, course NW.
5300 ft. 12.00 Top of ridge bears NW. and SE.
65.00 Dry gulch course NW.
Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is
5260 ft. 80.00 Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 11th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 11 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around post.
Chimney Rock bears N. 12° E.
Jackson's Butte bears N. 52° 40′ E.
Camel-back Butte bears S. 69° 31′ E.
Land gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, sage and cactus.
Alt. 5260 ft.
Temp. 56°. Oct. 11th, 1902.

I test the adjustments of the transit and

compare the steel tapes with the standard. Find everything correct and in adjustment.

12th mile

N. 89° 46′ E. on a true line descending.

3.00 Bottom of dry ravine, course NW., thence up general course of same.

5230 ft. 22.00 Leave ravine comes from SE. Ascend along SW. slope.

Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point.

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

5300 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 12th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N. M., on S. and 12 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.

Chimney Rock bears N. 7° 34′ E.

Jackson's Butte bears N. 48° E.

Camel-back Butte bears S. 65° 27′ E.

Wilson's Peak (Ship Rock) bears S. 0° 46′ W.

Land, gently rolling.

Soil, sand and clay, 3rd rate.

Vegetation, sage and cactus.

Alt. 5300 ft.

Temp. 70°.

13th mile

N. 89° 46′ E. on a true line.

Over gently rolling land.

Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is

5360 ft. 80.00 Set an iron pipe 2 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 13th mile cor. A brass cap on the top

of the pipe has raised letters Colo on N., N.M. on S. and 13 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Mancos River about 1½ miles N.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, sage, greasewood and cactus.
Alt. 5360 ft.
Temp. 70

14th mile

N. 89° 46' E. on a true line.
Over gently rolling land.
Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point.
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is
5350 ft. 80.00 Set an iron pipe 2 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 14th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 14 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass, sage, greasewood and cactus, very scanty.
Some grass will grow on this land when the season is not too dry.
Altitude 5350 ft.
Temp. 70

15th mile

N. 89° 46' E. on a true line.
Over gently rolling land.
43.00 Wagon road from Montezuma Valley to the

San Juan bears NW. and SE.
Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is

5340 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 15th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 15 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base, 2 ft. high around the post.
Chimney Rock bears N. 3° W.
Jackson's Butte bears N. 29° 30' E.
Camel back Butte bears S. 31° 30' E.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, very scanty greasewood.
Alt. 5340 ft.
Temp. 70°

16th mile.

N. 89° 46' E. on a true line.
Over gently rolling land.

1.00 Trail, bears N. and S.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks; position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

5225 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 16th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M on S. and 16 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, sage and greasewood.

Alt. 5225 ft.
Temp. 70°. Oct. 12th, 1902.

I examine the adjustments of the transit and compare the steel tapes with the standard, and find all correct this morning.

17th mile.

N. 89° 46' E. on a true line.
Ascending gradually
1.50 Dry gulch, course NW.
52.00 Road from Navajo Spring (Ute Agency) to Fruitland bears NW. and SE.
.01 Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is
5330 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 17th mile cor. A brass cap on the top of the pipe, has raised letters Colo on N., N.M. on S. and 17 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Chimney Rock bears N. 13° 03' W.
Jackson's Butte bears N. 11° 01' E.
NW. point of high cliff bears S. 5° 24' E. about ½ mile dist.
Camel back Butte bears S. 22° 18' W.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, very scanty, greasewood and cactus.
Alt. 5330 ft.
Temp. 48

18th mile.

N. 89° 46' E. on a true line.
Leave valley and ascend along N. slope over sharp ridges coming from south wall of canon.

19.40 Top of sharp spur, slope N. about 300 ft above last mile cor. South wall of canon about 5 chs. S. Bottom of canon about 15 chs. N. North wall of canon about 3/4 of a mile N.
Thence along very steep N. slope.
Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is

5300 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 18th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 18 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable. This cor stands at foot of slope in gulch, course N.
Land, rough and broken.
Soil, clay and sand, very rocky, 4th rate
Vegetation, scanty sage and greasewood.
Alt. 5300 ft.
Temp. 60°.

19th mile.

N. 89° 46' E. on a true line.
Along foot of slope from S. wall of canon over dry gulches running North.
Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 10.05 chs.
By 2nd set 79.95 chs.; the mean of which is

5350 ft. 80.00 Set an iron pipe 3 ins. dia 4 ft. long with flanges at the bottom 2 ft. in the ground for 19th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 19 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

This cor. stands in dry gulch, course N.
Land, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage, very scanty.
Alt. 5350 ft.
Temp. 70 .

20th mile

B. S9 46' E. on a true line.
Ascend over rolling and broken ground.
Difference between measurements of 34.09 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 34.10 chs.
By 2nd set 34.08 chs.; the mean of which is
5300 ft. 34.09 Stadia measurement,
Angle 11 ; Rod 10.81 double = 21.62 ft.
Constant. 96.36×21.62 ft.=2082.30 ft.+C.=1.13=2084.43 ft.=31.58 chs.+34.09 chs.=65.67 chs.
50.00 Dry bed of stream, 20 lks. wide, 10 ft. deep. bottom of canon, course NW.
55.00 Foot of rock cliffs bears NW. and SE.
5750 ft. 65.67 Stadia point, top of cliffs, bears NW. and SE. about 450 ft high; thence over mesa enter scrub cedar and pinon timber.
Thence by tape measurement.
Difference between measurements of 14.33 chs. by 2 sets of chainmen is nothing; the mean is 14.33 65.67 —
5750 ft. 80.00 This being the point 20 miles E. of the SW. cor. of the State of Colorado, I set astronomical Monument No. 1, on 37th parallel.
A sand stone 12x12 ins. by 6 ft. long 3 ft in the ground.
This monument is dressed 10 ins. down from the top on all 4 sides, said sides facing the cardinal points, and marked with letters 2 ins. square graven in the stone, on the N. Colo.; on the E. 37° N. L.; on the S. N. Mex.; on the W. 20M; 1902. Dug pits 36x36x18 ins. N. S. and W. of the monument 6 ft. dist.

Found it impracticable to dig E. pit owing to its place being covered by a large cedar stump. Raised a mound of earth and stone 5 ft. base 2 ft. high around the monument. The W. Pinnacle of Ship Rock bears S. 22° 06′ W.

A cedar tree 10 ins. dia. bears N. 8° E. 89 lks. dist. Mkd. Colo., 20 M., B. T.
A cedar tree 8 ins. dia. bears S. 44° E., 50 lks. dist., marked N. M., 20 M., B. T.
A cedar tree 8 ins. dia. bears N. 68° 40′ W. 101 lks. dist. Mkd. Colo.; 20M.; B. T.
No tree suitable for bearing tree within limits in SW. quadrant
Land, rough and broken.
Soil, rocky and sandy, 4th rate.
Vegetation, scrub greasewood, in valley, and scrub cedar and pinon timber on mesa.
Alt. 5750 ft.
Temp. 64°. Oct. 13th, 1902.

At the 20th mile cor., Oct. 14th, 1902, at 5h 58m P. M. i.m.t. after carefully adjusting the transit, I observe Polaris at eastern elongation and mark a point in this line on a plug driven in the ground N. of my station. Oct. 14th, 1902.

Oct. 15th, 1902, I lay off the azimuth of Polaris 1° 31′ to the W. and mark a point in the true meridian thus found on a plug driven in the ground N. of my station.
The magnetic bearing of the meridian is N. 13° 50′ W. This gives the magnetic declination 13° 50′ E.

I now lay off an angle of 90° from the N. to the east for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of 4 sights was used with the instrument reversed at each sight.

21st mile

East on the tangent to the parallel.
Over broken rocky ground and through scrub timber.

30.00 Top of ridge bears NW. and SE. about 50 ft. above last cor. Descend.

50.00 Leave timber bears NW. and SE.
Difference between measurements of 76.00 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 76.02 chs.
By 2nd set 75.98 chs.; the mean of which is

5700 ft. 76.00 N. .73 of a link from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 4 ins. in the ground to bed rock for 21st mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 20.95 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impractical.
Alt. 5700 ft.
Temp. 80°.
This corner was placed at this point because the point at 80 chs. falls in the canon.

72.21 Stadia point on bluff W. of cor.
Stadia measurement,
Angle 5° —; Rod 6.60 ft. double = 1320 ft.
Constant .9924×1320 ft.=1309.97 ft.+C.=1.14=1311.11 ft.
1311.11 ft.=19.86 cha.+72.21 chs.=92.07 chs.+80 chs.=12.07 chs.

80.00 Comes on steep slope of canon wall, impracticable to establish the cor. at this point.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, grass, sage, scrub cedar and pinon timber.

22nd mile

S. 89° 59' E. on the tangent to the parallel.

Descend over rough broken country.

6.00 Bottom of rock canon 200 ft. deep, heads about 10 chs. NW.

Course SE. about 1/4 mile SE. canon joins larger one from NE. to SW.

12.07 Stadia point on rocky spur, slope S. 125 ft. high.

Stadia measurement,

Angle 3 + : Rod 11.55 ft. double, = 2310 ft. 2310 ft. × .9973 = 2303.76 ft. + C. = 1.15 ft. = 2304.91 ft. = 34.92 chs. + 12.07 chs. = 46.99 chs.

5500 ft. 22.00 Bottom of main canon, course SW.

46.99 Stadia point.

Stadia measurement,

Angle 3 + : Rod 9.69 ft. single = 969 × .9973 = 966.38 ft. + C. = 1.15 ft. = 967.53 ft. = 14.66 chs. + 46.99 chs.

55 61.65 Stadia point.

Stadia measurement,

Angle 3 + : Rod 9.66 ft. single = 966 ft. × .9973 = 963.30 + C. 1.15 = 964.45 ft. = 14.61 chs. = 61.65 chs.

76.26 Stadia point on point of rocks S. walf of canon.

Tape measurement, 3.74 chs. + 76.26 chs.

5750 ft. 80.00 N. 3 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 22nd mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 22M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

This cor. stands in brush at foot of rocky bluff on S. side of canon.

Land, rough and broken.

Soil, rocky and sandy, 3rd rate.

Vegetation, grass, sage and willow brush, scattering scrub cedar and pinon.

Alt. 5750 ft.
Temp. 75°.

23rd mile

S. 89° 59' E. on the tangent to the parallel. Following up general course of rough canon.

5600 ft. 9.50 Bottom of canon, dry, course NW.; ascend.

5700 ft. 15.39 Point of rocks slope S.
Stadia measurement,
Angle 3° +; Rod 11.80 ft. double=2360 ft.
×.9973 = 2353.63+C. = 1.15 = 2354.78 ft.=
35.67 chs. + 15.39 chs. = 51.06 chs.

5600 ft. 39.00 Bottom of rocky canon comes in from NE. joins main canon about 2 chs. S. of the line; ascend cliffs.

5800 ft. 51.06 Stadia point on top of wall of canon, altitude 5800 ft., bears NE. and SE. Enter timber, thence over high table land or mesa.

74.00 Leave timber bears N. and S.
Difference between measurements of 44.33 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 44.34 chs.
By 2nd set 44.32 chs.; the mean of which is 44.33 chs. + 35.67 chs. =

5900 ft. 80.00 N. 7 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 23rd mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 23 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Land, rough and broken.
Soil, sandy and rocky, 4th rate.
Vegetation, grass, sage and willow brush, and scrub cedar and pinon.
Alt. 5900 ft.
Temp. 56°.

—24th mile—

S. 89° 58′ E. on the tangent to the parallel. Ascend over rolling rocky land.

5900 ft. 70.26 Foot of bluffs bears NW. and SE.; ascend. Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

5970 ft. 80.00 N. 12 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 24th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 24M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

Land, rolling.

Soil, rocky and sandy, 3rd rate.

Vegetation, grass, sage and cactus, scattering timber south of the line.

Alt. 5970 ft.

Temp. 50°. Oct. 15th, 1902.

I examine the transit and find it in adjustment, I compare the steel tapes with the standard and find them of correct length.

—25th mile—

S. 89° 57′ E. on the tangent to the parallel. Ascend rocky slope.

13.03 Stadia point, thence by Stadia measurement.

Angle 17′ + ; Rod 10.44 ft. double—2088 ft. × .9145—1909.48 ft. 1909.48 ft. + C.—1.10—1910.58 ft.—28.95 chs. = 13.03 chs.—

41.98 On top of cliffs W. edge of high mesa bears NW. and SE. about 800 ft. high, enter scrub cedar and pinon, thence over rocky mesa.

Difference between measurements of 51.05 chs. by 2 sets of chainmen is 4 lks. position of middle point

By 1st set 51.07 chs.
By 2nd set 51.03 chs.; the mean of which is 51.05 chs.=28.95 chs.=

6800 ft. 80.00 N. 19 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 3 ins. in the ground to bed rock for the 25th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., and N.M. on S. and 25M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
A pinon tree 10 ins. dia. bears S. 52° 50′ W. 86 lks. dist. Mkd. N.M., 25M., B.T. No other trees within limits suitable for bearing trees.
Land, rough and broken.
Soil, rocky and sandy, 4th rate.
Vegetation, some grass and sage on slope and scrub cedar and pinon on mesa.
Alt. 6800 ft.
Temp. 75 . Oct. 16th, 1902.

I examine the transit and compare the tapes with the standard, find all correct this morning.

—26th mile—

S. 89° 57′ E. on the tangent to the parallel.
6.00 Bottom of dry rocky gulch, course NE.
12.08 On sharp rocky spur slope N.
40.00 Bottom of dry ravine about 400 ft deep, course NE. about 5 miles to Mancos Canon.
6800 ft. 61.00 Sharp narrow rocky spur, slope N.
71.75 Stadia point on high rocky spur, slope NE.
Stadia measurement.
Angle 6′ —; Rod 13.00 ft. double=2600 ft.×
9891=2571.66 ft.+C. = 1.14 ft.=2572.80 ft.
=38.98 chs.+71.75 chs.=110.73 chs.=110.73 chs.—80.00 chs.=30.73 chs. on 27th mile.
As I find the point at 80.00 chs. will come in canon and is inaccessible therefore at

6850 ft. 73.00 N 24½ lks from the tangent,-
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom on bare rock for 26th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 25½ M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
This cor. stands on top of perpendicular wall.
Alt. 6850 ft.
Temp. 70°.

80.00 In canon, inaccessible.
Land, high mesa cut by canons.
Soil, rocky and sandy, 4th rate.
Timber, scrub cedar and pinon.

27th mile

S. 89° 56' E. on the tangent to the parallel.

15.00 Bottom of rocky chasm, about 500 ft deep, course NE.

30.73 Stadia point on long narrow ridge bears N. and S. about 300 ft. above bottom of canon.

60.00 Bottom of dry canon about 350 ft deep, course NE.; ascend.

Difference between measurements of 49.27 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 49.29 chs.
By 2nd set 49.25 chs.; the mean of which is 49.27 chs.
49.27 chs. +30.73 chs.

80.00 Comes on steep wall of canon, impracticable to establish the corner.
Land, very rough and broken.
Soil, rocky and sandy, 3 rd rate.
Timber, scrub cedar and pinon.

28th mile

S. 89° 55' E. on the tangent to the parallel.
Ascend rocky canon wall.

6700 ft.	1.20	N. 37 lks. from the tangent. Set an iron pipe 3 ins. dia 4 ft. long with flanges at the bottom on bare bed rock for 27th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 27.015 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable. This cor stands on top of wall of canon bears S. and NE.
		No trees within limits suitable for bearing trees.
		Alt. 6700 ft.
		Temp. 70°.
		Descend through scattering scrub cedars.
	30.00	Dry gulch, course NE.
	40.50	Top of ridge bears N. and S.; descend.
		Difference between measurements of 62.30 chs. by 2 sets of chainmen is 6 lks. position of middle point
		By 1st set 62.33 chs.
		By 2nd set 62.27 chs.; the mean of which is
6700 ft.	62.30	Stadia point on brink of ravine bears N. and S.
		Stadia measurement,
		Angle 2°—; Rod 10.43 double=2086 ft. 9988=2083.50 ft.+C.=1.15 ft.=2084.65 ft.= 31.58 chs.+62.30 chs.=93.88 chs.—80 chs.= 13.88 chs. on the 29th mile.
	80.00	Comes in bottom of dry rocky canon about 200 ft. deep, course NW. Impracticable to establish the cor.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Timber, scrub cedar and pinon.
		Oct. 17th. 1902.

I test the levels and collimation of transit, and compare the tapes with the standard; find all correct.

29th mile

S. 89° 55' E. on the tangent to the parallel.

13.88 Stadia point, tape measurement.

6500 ft. 14.00 N. 51 lks from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom on bare bed rock for 28th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 28.175 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.

Timber too scrubby for bearing trees.

Alt. 6500 ft.

Temp. 70°.

30.00 Top of ridge bears NW. and SE.

53.00 Bottom of dry ravine, course NW.

Difference between measurements of 66.00 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 66.01 chs.

By 2nd set 65.99 chs ; the mean of which is 66.00 chs. + 14.00 chs.

6500 ft. 80.00 N. 62 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 29th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 29 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post. No trees within limits suitable for bearing trees.

Land, rough and broken.

Soil, rocky and sandy, 3rd rate.

Timber ,scrub cedar and pinon.

Alt. 6500 ft.

Temp. 75°.

30th mile

S. 89° 54' E. on the tangent to the parallel.

17.00 Top of ridge bears N. and S.; descend.

6300 ft. 59.00 On top of canon wall bears NW. and SE.

canon about 400 ft deep and too wide to use stadia. Therefore set a flag across canon on tangent. Ran base line S. 0° 06' W. at right angles to tangent 20.00 chs. from S. end of base line flag on tangent line across canon bears N. 69° 27' E.
Angle from base line 69° 20'.
Tan. 69° 20' × base 20 chs. = 53.02 chs. = distance across canon.
53.02 chs. + 59.60 chs. = 112.62 chs. − 80.00 chs. = 32.62 chs. on 31st mile.

80.00 Falls in bottom of rough rocky canon about 400 ft. deep.
Main canon comes from NW., short branch comes from N. Course S. about ½ mile to Salt Canon. Impracticable to establish the corner.
Land, rough and rocky.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, grass sage, scrub cedar and pinon timber.

October 18th, 1902.

31st mile.

S. 89° 53' E. on the tangent to the parallel.
6200 ft 32.62 Point at E. end of triangulation.
N. 82 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock for 30th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on the S. and 30.408 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post.
Pits impracticable.
Ute Peak bears N. 38° 20' W.
Ship Rock bears S. 41° 40' W.
No trees within limits suitable for bearing trees.
This cor. stands on wall of canon bears N. and S.

Alt. 6200 ft
Temp. 64°

6200 ft 49.50 On W. wall of canon, bears N. and S
Descend over rocks.

5900 ft. 77.00 Dry bed of stream 10 lks. wide in bottom of canon, course S.

77.50 Trail, bears NE. and SW

Difference between measurements of 47.38 chs. by 2 sets of chainmen [illegible] 8 lks. position of middle point

By 1st set 47.42 chs.
By 2nd set 47.34 chs., the mean of which is 47.38 chs.
47.38 chs. = 32.62 chs.

5900 ft 80.00 N. 92 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 31st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 31 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
This cor. stands in N. branch of Salt Canon, course SW. about ½ mile to main canon.
No trees within limits suitable for bearing trees.
Land, rough and broken.
Soil, sand and clay, very rocky, 3rd rate.
Vegetation, grass, sage, scrub cedar and pinon.
Alt. 5900 ft.
Temp. 80°

32nd mile.

S. 89 53' E. on the tangent to the parallel.
Ascend steep rocky canon wall.

23.32 On top of canon wall about 300 ft. above corner, bears NE. and SW.

32.00 Dry ravine, course NW.

60.00 Dry ravine, course N. W.

Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 80.06 chs.
By 2nd set 79.94 chs., the mean of which is
6150 ft. 80.00 N. 110 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 32nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 32 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
No trees within limits suitable for bearing trees.
Land, rough and broken, very rocky.
Soil, sand and clay, 4th rate.
Vegetation, sage, scrub cedar and pinon.
Alt. 6150 ft
Temp. 70

Oct. 19th, 1902.

I examine the levels and line of collimation of transit, and compare the steel tapes with the standard and find everything in adjustment.

33rd mile

S. 89° 52' E. on the tangent to the parallel.
30.00 Head of canon, course SE.
73.00 Leave timber bears NE. and SW.
Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point.
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is
6150 ft. 80.00 N. 129 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 33rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 33 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. Raised a mound of earth 5 ft base

2 ft. high around the post.
No trees within limits.
Land, rolling.
Soil, sand and clay, 4th rate.
Vegetation, sage, scrub cedar and pinon.
Alt. 6150 ft.
Temp. 80°.

34th mile.

S. 89° 52′ E. on the tangent to the parallel.
Over gently rolling land.

6.00 Enter scrub cedar and pinon, timber, bears N. and S.

72.30 Top of ridge, bears N. and S.; descend.

78.00 Dry gulch, course SE.; ascend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 80.01 chs.

By 2nd set 79.99 chs.; the mean of which is

6210 ft. 80.00 N. 150 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 1 ft. in the ground to bed rock for 34th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 34 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.

A pinon tree 6 ins. dia. bears N. 2° 10′ E. 50 lks. dist, mkd. Colo. 34 M., B. T.

A pinon tree 6 ins. dia. bears S. 24½° W., 63 lks. dist., marked N.M., 34 M., B. T.

No other trees within limits suitable for bearing trees.

Land, rolling.

Soil, sand and clay, 3rd rate.

Vegetation, grass, sage, scrub cedar and pinon.

Alt. 6210 ft.

Temp. 76°. Oct. 20th, 1902.

35th mile

I examine the transit and compare the steel tapes with the standard, find all correct.
S. 89° 51′ E. on the tangent to the parallel.

14.20 Trail bears N. and S.

17.52 Top of spur slope S.

Stadia measurement.

Angle 0′; Rod 11.17 double=2234 ft.+C.=1.15 ft.=2235.15 ft.=33.86 chs.+17.52 chs.=51.38 chs.

6200 ft. 21.00 On W. wall of canon bears S. and N.

40.00 Bottom of canon about 350 ft. deep, dry, course S. There is a water pocket about 3/4 of a mile N. in this canon.

6200 ft. 51.38 On E. wall of canon bears N. and S., thence by tape measurement.

Difference between measurements of 46.14 chs. by 2 sets of chainmen is 4 lks. position of middle point

By 1st set 46.16 chs.

By 2nd set 46.12 chs.; the mean of which is 46.14 chs.+38.86 chs.=

6200 ft. 80.00 N. 172 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 35th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 35 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 8 ins. dia. bears N. 15° 20′ E. 36 lks. dist. marked Colo. 35M., B. T.

A pinon tree 8 ins. dia. bears S. 58° 10′ W. 88 lks. dist. marked N.M., 35M., B. T.

No other trees within limits suitable for bearing trees.

Land, rolling and broken.

Soil, sand and clay, 3 rd rate.

Vegetation, grass, sage and cactus, scrub cedar and pinon.

Alt. 6200 ft.

Temp. 80°.

36th mile

S. 89° 50' E. on the tangent to the parallel. Over mesa and through scrub timber.

75.00 Dry gulch; course NW.

Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 80.01 chs.

By 2nd set 79.99 chs.; the mean of which is

6400 ft. 80.00 N. 196 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 36th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 36M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 10 ins. dia. bears N. 60° 10' W. 44 lks. dist. marked Colo. 36M., B. T.

A pinon tree 12 ins. dia. bears S. 21° S. 76 lks. dist. marked N.M., 36M., B. T.

No other trees within limits suitable for bearing trees.

Land, nearly level.

Soil, sand and clay, 3rd rate.

Vegetation, grass, cactus, scrub cedar and pinon.

Alt. 6400 ft.

Temp. 82°.

37th mile

S. 89° 50' E. on the tangent to the parallel. Over nearly level mesa, through scrub timber.

Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is

6530 ft. 80.00 N. 221 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 1 ft. in the ground to bed rock for 37th mile cor. A brass cap on the top of the pipe has raised letters Colo.

on N., N.M. on S. and 37 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.

A pinon tree 10 ins. dia. bears N. 62½° E. 26 lks. dist. marked Colo. 37 M., B. T.

A pinon tree 14 ins. dia. bears S. 24° E. 49 lks. dist. marked N. M., 37 M., B. T.

A pinon 7 ins. dia. bears N. 46° 50' W. 25 lks. dist. marked Colo., 37 M., B. T.

No trees within limits SW. suitable for bearing trees.

Land, nearly level mesa.

Soil, sand and clay, 3rd rate.

Vegetation, scrub cedar and pinon.

Alt. 6530 ft.

Temp. 70°.

Oct. 21st, 1902.

I examine the transit and compare the steel tapes with the standard, find all correct.

38th mile—

S. 89° 49' E. on the tangent to the parallel.

17.00 Dry gulch, course NW.

6530 ft. 30.90 Top of ridge bears NW. and SE.

6500 ft. 41.00 On W. wall of canon, bears NW. and SE.; descend.

6100 ft. 60.00 Bottom of canon, dry, bed of stream 10 lks. wide, course SE.

The W. branch of Barker Arroyo about 400 ft. below top of wall.

63.00 Trail bears NW. and SE.

Difference between measurements of 80 chs. by 2 sets of chainmen is 14 lks. position of middle point

By 1st set 80.07 chs.

By 2nd set 79.93 chs.; the mean of which is

6100 ft. 80.00 N. 247 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 38t. mile cor. A brass cap on the top of

the pipe has raised letters Colo. on N., N.M. on S. and 38 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands on W. side of low spur that slopes S.

No trees suitable for bearing trees within limits.

Land, rough and broken.

Soil, sand clay, 3rd rate.

Vegetation, grass, sage and cactus, scrub cedar and pinon timber.

Alt. 6100 ft.

Temp. 70°.

At the 38th mile cor. at 5h 26m P.M. 1m.t., I observe Polaris at eastern elongation. Though still daylight the star is plainly visible through the transit telescope. I mark a point in this line on a plug driven in the ground N. of my station.

October 22nd, 1902.

October 23rd, at 7h 30m A.M. I lay off the azimuth of Polaris 1° 31.1′ to the W. and mark a point in the true meridian thus found on a plug driven in the ground N. of my station.

The magnetic bearing of the meridian is N. 13° 50′ W., which gives magnetic variation 13° 50′ E. I now lay off 90° from the meridian from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of four sights was used, the instrument being in perfect adjustment, and the telescope reversed at each sight.

I compare the steel tapes with the standard and find them of correct length.

39th mile.

East on the tangent to the parallel.

Ascend over S. slope.

6150 ft. 6.00 Top of spur slope S.
Stadia measurement,
Angle 8 +; Rod 12.70 double=2540 ft.×.9806=2490.72 ft.
2490.72 ft.+C. 1.14 ft.=2491.86 ft.=37.75 chs.+6.00 chs.=43.75 chs.

6100 ft. 20.00 Bottom of dry canon, course S.; ascend.

43.75 Stadia point, thence by tape measurement,

6500 ft. 46.00 On top of wall of canon, about 400 ft. above bottom, bears SW. and NE.
Stadia measurement,
Angle 0°, Rod 10.20 double=2040 ft.+C.=1.15 ft.=2041.15 ft.
2041.15 ft.=30.92 chs.+46.00=76.92 chs.

6400 ft. 52.00 Dry ravine, course SE.; ascend.

76.92 On rocky south slope, stadia point.
Stadia measurement,
Angle 5° +, Rod 10.40 ft. single=1040×9924=1032.09+C.=1.14 ft.=1033.23 ft.=15.65 chs.+76.92 chs.=92.57 chs.—80 chs.=12.57 chs. on 40th mile.

80.00 Falls on rocky S. slope; impracticable to establish cor. here.
Land, very rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, grass, sage, scrub cedar and pinon.

40th mile

S. 89° 59′ E. on the tangent to the parallel.

12.57 On wall of canon, bears NW. and SE.

6675 ft. 13.37 N. 1 lk. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 10 ins. in the ground to bed rock for 39th mile. cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 39.167 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.

No trees within limits suitable for bearing trees.
Alt. 6675 ft.
Temp. 80

24.65 Brow of cliffs, bears NE. and SE.; descend.

36.00 Dry rocky ravine, 300 ft. deep, course S.; ascend along rocky south slope.
Difference between measurements of 66.63 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 66.68 chs.
By 2nd set 66.58 chs.; the mean of which is 66.63 chs.
66.63 chs. + 13.37 chs.

6575 ft. 80.00 N. 3 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 40th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 40 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands on rocky spur sloping S. No trees within limits large enough for bearing trees.
Land, very rocky, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, grass sage and cactus, scrub cedar and pinon.
Alt. 6575 ft.
Temp. 70°.

41st mile

S. 89° 59' E. on the tangent to the parallel.
Ascend.

2.60 Top of spur slope S.
Stadia measurement,
Angle 9° +, Rod 10.62 double = 2124 ft. × 9755 = 2071.96 ft. + C. = 1.13 ft. = 2075.09 ft. = 31.42 chs. + 2.60 chs. = 34.02 chs.

15.00 Bottom of dry canon, course SW., 100 ft. deep.

34.02 On wall of canon, bears NE. and SW., about 200 ft. above bottom.
Ascend by tape measurement.
Difference between measurements of 48.58 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 48.60 chs.
By 2nd set 48.56 chs.; the mean of which is 48.58 chs.
48.58 chs. - 31.42 chs.

6875 ft. 80.00 N. 7 lks. from the tangent
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 41st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 41 M. stamped in the center. R. iset a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 6 ins. dia. bears N. 86° 20' E. 62 lks. dist. marked Colo., 41M., B. T.
A pinon tree 10 ins. dia. bears S. 17° 20' W. 84 lks. dist. marked N.M., 41 M., B.T.
No other trees within limits suitable for bearing trees.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, grass, sage, scrub cedar and pinon.
Alt. 6875 ft.
Temp. 58°

October 23rd, 1902.

42nd mile

S. 89° 58' E. on the tangent to the parallel
.40 Dry gulch coarse N., ascend.
15.42 Top of ridge bears N. and S.; descend.
75.00 Top of spur slope south.
Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks., position of middle point.
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is

7000 ft. 80.00 N. 12 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 42nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 42 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 6 ins. dia. bears N. 16° 40' E. 66 lks. dist. marked Colo., 42 M., B. T.
A pinon tree 8 ins. dia., bears S. 37° 40' W. 47 lks. dist. marked N.M., 42 M., B. T.
No other trees within limits suitable for bearing trees.
Land, rough and rocky.
Soil, sand and clay, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 7000 ft.
Temp. 70°.

43rd mile

S. 89° 57' E. on the tangent to the parallel.
Ascend.
7.32 Top of spur slope E.
Stadia measurement,
Angle 0°, Rod 12.84 double = 2568 ft. + C. 1.15 ft. = 2569.15 ft. = 38.92 chs. + 7.32 chs. = 46.24 chs.
33.00 Bottom of canon about 300 ft. deep, dry, course SW.
46.24 Stadia point, thence by tape measurement.
7000 ft. 49.00 Top of ridge bears NW. and SE.; altitude 7000 ft.
51.58 Point of spur slope E.; descend.
76.80 Bottom of dry ravine, course SE. about 100 ft. deep.
Difference between measurements of 41.08 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 41.09 chs.
By 2nd set 41.07 chs.; the mean of which is

41.08 chs. = 38.92 chs.

80.00 Falls on steep side of rocky gulch, impracticable to establish the cor. at this point.
Land, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, scrub cedar and pinon.

October 25th, 1902

I examine the adjustments of the transit, compare the steel tapes with the standard and find all correct.

44th mile

S. 89° 57' E. on the tangent to the parallel.

6725 ft. 4.00 Top of spur slope SE.
N. 19 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 43rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 43.05 M. stamped in the center. Raised a mound of earth 3 ft. base 2 ft. high around the post. Pits impracticable.
A cedar tree 12 ins. dia. bears N. 29° E. 29 lks. dist. marked Colo. 43.05 M. B. T.
A pinon tree 7 ins. dia. bears S. 68° E. 55 lks. dist. marked N.M., 43.05 M., B. T.
A cedar tree 12 ins. dia. bears S. 15° 15' W. 97 lks. dist. marked N.M., 43.05 M., B. T.
A cedar tree 12 ins. dia. bears N. 78° 10' W. 78 lks. dist. marked Colo., 43.05 M., B. T.
Alt. 6725 ft.
Temp. 65°.

8.00 Dry ravine, course SE., about 100 ft. deep; ascend.

12.30 Top of spur, 100 ft. high, slope SE.; descend.

18.00 Dry ravine Course SE., about 100 ft. deep, ascend.

24.50 Top of spur slope SE.; ascend.

40.00 Dry ravine course SE.; ascend.

48.00 Top of spur slope nearly E.; descend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 80.04 chs.
By 2nd set 79.96 chs.: the mean of which is
6650 ft. 80.00 N. 27 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 44th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 44 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 5 ins. dia. bears N. 44° 45′ E. 35 lks. dist. marked Colo., 44 M., B. T.
A pinon tree 12 ins. dia. bears S. 49° W. 116 lks. dist. marked N.M., 44 M., B. T.
No other trees within limits suitable for bearing trees.
Land, rolling and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6650 ft.
Temp. 70°.

45th mile

S. 89° 56′ E. on the tangent to the parallel.
Descend.
Stadia measurement,
Angle 3° —, Rod 9.61 double=1922 ft. × .9973=1916.81 ft. + C. =1.15 ft.=1917.96 ft. =29.06 chs.
20.00 Bottom of box canon, about 200 ft. deep, course SE.; ascend.
29.06 Stadia point, thence by tape measurement.
33.38 On spur slope SE. about 100 ft. above bottom of canon.
Stadia measurement,
Angle 3° —, Rod 11.82 single=1182 ft. × .9975 =1178.81 ft. + C. = 1.15 ft.=1179.96=17.88 chs. + 33.38 chs.=51.26 chs.
47.00 Bottom of rocky gulch, course SE.; ascend.

51.26 Stadia point, thence by tape measurement.
70.00 Top of spur, slope SE.
74.00 Dry gulch, course SE.
Difference between measurements of 33.06 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 33.08 chs.
By 2nd set 33.04 chs.; the mean of which is is 33.06 chs. + 46.94 chs. =
6200 ft. 80.00 N. 37 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock for 45th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S., and 45 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post.
Pits impracticable.
A pinon tree 7 ins. dia. bears N. 37° 40' E. 75 lks. dist. marked Colo., 45 M., B.T.
A pinon tree 12 ins. dia. bears S. 25° 10' E. 90 lks. dist. marked N.M., 45 M., B.T.
A pinon tree 8 ins. dia. bears S. 35° 20' W. 77 lks. dist. marked N.M., 45 M., B.T.
A pinon tree 6 ins. dia. bears N. 25½° W. 110 lks. dist. marked Colo., 45 M., B.T.
Land, rolling and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6200 ft.
Temp. 70°

October 26th, 1902

I examine the levels and collimation of transit and compare the steel tapes with the standard, find all in adjustment.

46th mile.

S. 89° 55' E. on the tangent to the parallel.
Descend through scrub-timber.
16.75 Wood road bears NW. and SE.
74.00 Wood road on spur bears NW. and SE.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is

5910 ft. 80.00 N. 49 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 46th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 46 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 10 ins. dia. bears N. 14° 45′ W. 53 lks. dist. marked Colo., 46 M. B.T.
A cedar tree 7 ins. dia., bears S. 11° 45′ E. 90 lks. dist. marked N.M., 46 M., B.T.
No other trees within limits suitable for bearing trees.
This cor. stands on edge of dry gulch, course nearly E.
Land, rolling.
Soil, sandy and rocky, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 5910 ft.
Temp. 70°.

47th mile.

S. 89° 55′ E. on the tangent to the parallel. Descend along dry gulch, leave timber, bears NE. and SE.

25.80 Dry gulch, course SE.
31.00 Foot of hill bears N. and SE.; ascend.
54.00 Brow of bluff bears N. and S. 50 ft above last cor.; descend.
64.70 Wagon trail bears NE. and SW.; foot of bluff about 100 ft high, enter La Plata Valley, bears NE. and SW.
68.95 Wire fence bears N. and S.; enter Dale's field.
69.85 Irrigating ditch, course SW.
Difference between measurements of 80

chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is
5850 ft. 80.00 This point comes in middle of cultivated field, liable to be destroyed, therefore I set corner by public road on next mile.
Land, rolling.
Soil, sandy, 2nd and 3rd rate.
Vegetation, grass, sage, scrub cedar and pinon.

48th mile

S. 89° 54′ E. on the tangent to the parallel. Across cultivated field.
16.90 W. edge of dry bed of La Plata, 75 lks. wide, course S.
18.00 Leave cultivated ground and enter dense willow and sage brush, bears N. and S.
22.42 Wire fence bears N. and S.; leave field.
28.60 Road bears N. and S. from Hesperus to Fruitland.
Difference between measurements of 30 chs. by 2 sets of chainmen is nothing, the mean is
5850 ft. 30.00 N. 67 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 47th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 47.375 M. stamped in the center. Dig pits 36x36x18 ins. N., S., E., and W. of cor. 6 ft. dist. Raised a mound of earth and stone 5 ft. base 2 ft. high around the post.
An oak tree 8 ins. dia. bears S. 80° 09′ E. 226 lks. dist. marked N.M., 47.375 M., B.T. No other bearing trees. The W. gable of Dale's new house bears N. 7° 48′ E. about 20 chs. dist.
The N. gable of Date's old house bears S 14° W. about 15 chs. dist.

A granite stone by the roadside bears S. 1° W. 5.80 chs. dist. This stone which is 10x4x10 ins. above ground is on the old Darling line and is marked Colo., 1868 on N. and N. Mex on S. I destroy this cor and retrace the Darling line W. At 59.60 chs. I find an old pine post marked Colo., on N., 284 on E., N. Mex. on S. and 1868 on W. I destroy the post, ran W. retracing Darling's 285th mile. At 80.10 chs. I find a stake in ground and nearby a tree marked in pencil "Near Darling's 285th mile cor." I find no old Darling marks. Ran W. retracing Darling's 286th mile. At 79.40 chs. find a pile of stone, but no marks of any kind. Ran W. retracing Darling's 287th mile. At 80.00 chs. failed to find any trace of Darling's 287th mile cor. and failed to find any of Darling's corners W. of this point, except the stone mentioned in these notes on my 6th mile and Darling's 10th astronomical station nearly S. of our 17th mile.

48th mile continued

I now return to point on tangent and run S. 89° 54′ E. on the tangent to the parallel on 48th mile.

34.00 Irrigation ditch, course SW. leave La Plata Valley bears NE. and SW.

42.00 On top of bluff about 50 ft high, bears NE. and SW.

48.60 Darling's 283rd mile cor. bears S. 5.90 chs. A sandstone 8x4x10 ins. above ground marked C. on N., 283 on E., N.M. on S. and 1868 on W.
I destroyed this cor.

50.00 Top of ridge, 50 ft high, bears NE. and SW.; descend.

63.00 Dry gulch, course S.

68.70 Dry gulch, course SW.

Difference between measurements of 50

chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 50.02 chs.
By 2nd set 49.98 chs.; the mean of which is 50.00 chs. +30.00 chs.

5875 ft. 80.00 N. 92 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 48th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 48 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft dist., raised a mound of earth 5 ft. base 2 ft. high around the post.
A cedar tree 8 ins. dia. bears S. 18° E. 98 lks. dist. marked N.M., 48 M., B.T.
A cedar tree 10 ins. dia. bears S. 44½° W. 124 lks. dist. marked N.M., 48 M., B.T.
No trees on other side of line within limits.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage. Willow brush along the La Plata.
Alt. 5875 ft.
Temp. 62°.

At the 48th mile cor.; at 5h 07m P. M. 1m.t., Oct. 27th, 1902 after carefully adjusting transit, though still daylight, I observe Polaris at eastern elongation. The star is plainly visible through the transit telescope. I mark a point in this line on a plug driven in the ground N. of my station.

October 27th, 1902.

Oct. 28th, 1902, at 7h A. M. I lay off the azimuth of Polaris 1° 31.1' to the W. and mark a point in the true meridian on a plug driven in the ground N. of my station. The magnetic bearing on the meridian is N. 12° 55' W., this gives the magnetic declination 13° 55' E.

I now lay off from the N. to the E. for the

tangent to the parallel, an angle of 90° from the meridian. In all these observations and the subsequent turning of angles the mean of 4 sights was used with the telescope reversed at each sight.

—49th mile—

East on the tangent to the parallel.
Ascend along NW. slope.

16.00 Enter scattering scrub timber bears NE. and SW.

49.00 Darfing's 282nd mile cor. bears S. 6.65 chs. dist., a sandstone 14x4x12 ins. above ground in a stone mound. One cedar bearing tree SW.; I destroyed this corner.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which is

6000 ft. 80.00 N. .76 of a link from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 49th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 49 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post. No trees within limits suitable for bearing trees.

Land, rolling.

Soil, sand and clay, 3rd rate.

Vegetation, grass, sage scrub cedar and pinon.

Alt. 6000 ft.

Temp 70°.

—50th mile—

S. 89° 59' E. on the tangent to the parallel.
Along gentle N. slope, over rolling lands, through scattering timber.

10.00 Top of spur slope N.; descend.

	49.10	Darling's 281st mile cor., bears S. 5.67 chs. dist. A sandstone 18x4x12 ins. above ground marked N.M. on S. and 1868, on W. I destroyed this corner.
	60.00	Dry gulch, course SE.
	65.00	Dry gulch, course S.; ascend.
6000 ft.	77.00	Foot of rock cliffs, bears NE. and SW.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is
	80.00	Comes on steep side of cliffs impracticable to establish the cor. at this point.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage, scattering scrub cedar and pinon.

—51st mile—

S. 89° 59' E on the tangent to the parallel. Ascend cliffs.

6275 ft.	4.00	N. 3 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 6 ins. in the ground to bed rock for the 50th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 50.05 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
		Alt. 6275 ft.
		Temp. 80°.
6275 ft.	10.00	Top of spur slope S.; descend.
	45.00	Coal cropping about 30 ft thick about 3 chs. S. of the line
[illegible] ft.	47.00	Dry gulch, course SW.; ascend cliffs.
	49.00	After a careful search 6 chs. S. of line I failed to find Darling's 280th mile corner.
6100 ft.	59.00	Top of high rocky ridge. 200 ft. above gulch, bears NE. and SW.; descend.
		Difference between measurements of 76

chs. by 2 sets of chainmen is 10 lks. position of middle point.
By 1st set 76.05 chs.
By 2nd set 75.95 chs.; the mean of which is 76.00 chs.
76.00 chs. + 4.00 chs.

6000 ft. 80.00 N. 7 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 51st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 51 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable.
A pinon tree 10 ins. dia. bears E. 38° E. 81 lks. dist. marked N.M., 51 M., B.T.
A cedar tree 10 ins. dia. bears N. 48° W. 85 lks. dist. marked Colo., 51 M. B.T. No other trees within limits suitable for bearing trees.
This cor. stands on brink of canon that bears N. and S.
Land, rolling and broken.
Soil, sand and clay, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6000 ft.
Temp. 60°.

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(67)

52nd mile

S. 89° 58' E. on the tangent to the parallel.
Descend.
Stadia measurement,
Angle 6 —. Rod 7.15 double =1430×.9891=1414.41 ft. + C. =1.14 ft. =1415.55 ft. =21.45 chs.

6.00 Bottom of canon abont 150 ft. deep, course S.; ascend.

21.45 Stadia point on spur, slope S.
Thence by tape measurement,

46.60 Darling's 279th mile cor. bears S. 5.72 chs. dist. A sandstone 8x10x6 ins. above ground marked C. on N., N.M. on S., 279 on E. Two

cedar bearing trees on S. side of line. I destroyed this cor.

5800 ft. 47.00 Dry bed of McDermott's Creek, course SW.; about 20 chs. down bed of creek a soda spring.

Difference between measurements of 58.55 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 58.56 chs.

By 2nd set 58.54 chs.; the mean of which is 58.55 chs. +21.45 chs.

5975 ft. 80.00 N. 12 lks from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 52nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 52 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands on side of hill sloping NW.

A pinon tree 10 ins. dia. bears S. 45° 20′ E. 87 lks. dist. marked N.M., 52 M., B.T.

A pinon tree 7 ins. dia. bears S. 21° 40′ W. 58 lks. dist. marked N.M., 52 M., B.T.

A pinon tree 7 ins. dia. bears N. 43° W. 86 lks. dist. marked Colo., 52 M., B.T.

No tree within limits NE. suitable for bearing tree.

Land, rolling and broken.

Soil, sand and clay, 3rd rate.

Vegetation, grass, sage and scattering scrub cedar and pinon.

Alt. 5975 ft.

Temp. 50°. October 28th, 1902.

I examine the transit in all its parts and find it in adjustment, compare the steel tapes with the standard and find them of correct length.

53rd mile

S. 89° 57′ E. on the tangent to the parallel.

Ascend.

10.00 Top of spur slope N.; descend.

15.00 Leave timber bears N. and S.

47.86 Darling's 278th mile cor. bears S. 6.08 chs. A cedar post marked C. on N., 278 on E., and N.M. on S. standing in line of wire fence. Pits E. and W. of post appear to have been excavated within the last 3 and 4 years. Post may not be in its original position. Post much decayed. Marks scarcely legible. I destroyed this cor.

50.75 Dry gulch, course N.

76.25 Road bears NE. and SW.

Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

5950 ft. 80.00 N. 19 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 53rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 53 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Most eastern high peak of the La Plata Mts., bears N. 6° 40′ E. A conical peak covered with timber and capped with black lava rock just visible over low hills bears N. 45° 54′ W. about 2 miles dist.
A SW. salient of high mesa having profile of Indian features looking W., bears S. 22° 40′ E.
Land, gently rolling.
Soil, clay with some sand, 3rd rate.
Vegetation, sage, scattering scrub cedar and pinon.
Alt. 5950 ft.
Temp. 70°.

54th mile

S. 89° 57′ E. on the tangent to the parallel. Ascend over gently rolling ground.

13.00 Irrigation ditch, now dry, course SW. Enter scattering timber bears N. and S.

20.00 About 6 chs. S. to cor. of wire fence that runs W. and a little E. of S.

49.10 A post supposed to be Darling's 277th mile cor. bears S. 6 chs. dist, not marked. One bearing tree each side of an E. and W. line. I destroyed this cor. There are subdivision closing corners E. and W. of this point, and not far from it which I leave standing.

55.00 Leave timber, bears N. and S.

60.00 Dry gulch, course NW.

79.00 Enter timber bears NW. and SE.

Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

6210 ft. 80.00 N. 27 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 54th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 54 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.

A pinon tree 8 ins. dia. bears N. 57° 20′ W. 75 lks. dist. marked Colo., 54 M., B.T.

A pinon tree 6 ins. dia. bears S. 68½° E. 65 lks. dist. marked N.M., 54 M., B.T.

No other trees within limits suitable for bearing trees.

Conical peak covered with timber and capped with black lava rock bears N. 60° 40′ W. about 3 miles dist.

S. salient of high mesa profile of Indian face looking W. bears S. 4° 10′ E.

Land, rolling.

Soil, clay and sand, 3rd rate.
Vegetation, sage and scattering scrub cedar and pinon.
Alt. 6210 ft.
Temp. 65°.

55th mile

S. 89° 56' E. on the tangent to the parallel. Over gently rolling land.

18.00 Top of spur slope NW.

32.00 Leave timber bears NW. and SE.

48.00 Darling's 276th mile cor. a post marked C. on N., 276 on E. and N.M. on S. and 1868 on W. bears S. 6.45 chs. I destroyed this cor.

52.75 Dry gulch, course NW.

68.65 Wagon trail bears NE. and SW.

Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is

6250 ft. 80.00 N. 37 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 55th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 55 M., stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post. A cedar tree 12 ins. dia. bears N. 34° 50' E. 309 lks. dist. marked Colo., 55 M., B.T.
A pinon tree 12 ins. dia. bears S. 58° 40' W. 204 lks. dist. marked N.M., 55 M., B.T. No other trees within limits.
Land, rolling
Soil, sand and clay, 3rd rate.
Vegetation, sage and scrub cedar and pinon.
Alt. 6250 ft.
Temp. 68°.

56th mile

S. 89° 55′ E. on the tangent to the parallel. Over gently rolling land.

34.00 Enter timber bears N. and S.

6250 ft. 41.50 Foot of bad land hills bears NE. and SW.; ascend.

49.50 Darling's 275th mile cor. bears S. 6 chs. A cedar tree 12 ins. dia. marked Colo. on N., 275 on E., N.M. on S., 1868 on W. sides. I destroy these marks.

77.00 Top of rock bluff bears NW. and SE., about 100 ft. high.

Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 80.03 chs.

By 2nd set 79.97 chs.; the mean of which is

6425 ft. 80.00 N. 49 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 56th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 56 M. stamped in the center. Raised mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A cedar tree 10 ins. dia. bears N. 63° 30′ E. 66 lks. dist. marked Colo., 56 M., B.T.

A pinon tree 10 ins. dia. bears S. 65° E. 57 lks. dist. marked N.M., 56 M., B.T.

No other trees within limits suitable for bearing trees.

Soil, sand and clay, 3rd rate.

Vegetation, sage, scrub cedar and pinon.

Land, rolling.

Alt. 6425 ft.

Temp. 60°. October 29th, 1902.

I examine the instrument, compare the steel tapes with the standard and find all correct.

57th mile

S. 89° 55′ E. on the tangent to the parallel.

Along S. rocky slope.

6425 ft. 10.00 Top of rock ledge bears SW. and NW.

12.00 Coyote Spring about 15 chs. S.

49.25 Darling's 274th mile cor. bears S. 6.08 chs. A post marked Colo. on N., 274 on E., N.M. on S. and 1868 on W. I destroyed this cor. Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is

6325 ft. 80.00 N. 62 lks. from the tangent.

Set an iron pipe 3 ins. dia 4 ft. long with flanges at the bottom 2 ft. in the ground for 57th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 57 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.

A pinon tree 8 ins. dia. bears N. 54° 40' 55 lks. dist. marked Colo., 57 M., B.T.

A pinon tree 10 ins. dia. bears S. 17° 20' E. 60 lks. dist. marked N.M., 57 M., B.T.

A pinon tree 12 ins. dia. bears N. 12° W. 82 lks. dist. marked Colo., 57 M., B.T.

A pinon tree 6 ins. dia. bears S. 43° W. 22 lks. dist. marked N.M., 57 M., B.T.

Land, rolling and broken.

Soil, sand, clay and alkali, 3rd rate.

Vegetation, scrub cedar and pinon.

Alt. 6325 ft.

Temp. 62°.

58th mile

S. 89° 54' E. on the tangent to the parallel.

Ascend through timber.

9.80 On spur slope NW.

48.70 Darling's 273rd mile cor. bears S. 5.55 chs. A post 4 ins. square marked Colo. on N., 273 on E., N.M. on S. and no marks on the W. I destroyed this cor.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is
80.00 Comes on rough hillside, impracticable to establish cor at this point.
Land, mountainous.
Soil, sandy and rocky, 3rd rate.
Vegetation, sage, scrub cedar and pinon.

59th mile

S. 89° 53' E. on the tangent to the parallel.
Ascend.
6500 ft. 8.00 N. 78 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 58th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 58.1 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft base 2 ft. high around the post.
A pinon tree 10 ins. dia., bears N. 8° 40' E. 76 lks. dist. marked Colo., 58.1 M., B.T.
A cedar tree 8 ins. dia. bears 56½° E. 22 lks dist. marked N.M., 58.1 M., B.T.
A cedar tree 10 ins. dia. bears N. 65½° E. 20 lks. dist. marked Colo., 58.1 M., B.T.
No tree within limits SW. suitable for bearing tree.
Alt. 6500 ft.
Temp. 70°.
This cor. stands on sharp slope N.
49.00 Darling's 272nd mile cor. bears S. 5.25 chs.
A sandstone marked C. on N., 272 on E., N.M. on S. I destroy this cor. and marks on three bearing trees.
Difference between measurements of 72 chs. by 2 sets of chainmen is 2 lks. position of middle point.
By 1st set 72.01 chs.

By 2nd set 71.99 chs.; the mean of which is 72.00 chs. 8.00

6500 ft. 80.00 N. 92 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 59th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 59-M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. No trees within limits suitable for bearing trees.

Land, rolling and broken.

Soil, sand and clay, 3rd rate.

Vegetation, scrub cedar and pinon.

Alt. 6500 ft.

Temp. 62. October 30th, 1902.

I examine the transit and find it in perfect adjustment, compare the tapes and find them of correct length.

60th mile

S. 89° 53' E. on the tangent to the parallel.

29.00 Leave timber bears N. and S.

34.00 Dry gulch, course S. about 100 ft. below last cor.

49.76 Darling's 271st mile cor. bears S. 5 chs. A sandstone 8x12x16 ins. above ground marked 271 on E. Other marks defaced by time. I destroyed this cor.

57.00 Dry gulch, course SW.; ascend.

60.00 Cave Spring in Spencer Canon, about 60.00 chs. S.

65.00 Enter timber bears NW. and SE.

76.00 Top of rocky spur, slope NW.

Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 80.03 chs.

By 2nd set 79.97 chs.; the mean of which is

6800 ft. 80.00 N. 110 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 1 ft. in the ground to bed rock for 60th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S., and 60 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.

A pinon tree 7 ins. dia. bears S. 57° 50′ E. 52 lks. dist. marked N.M., 60 M., B.T.

A pinon tree 7 ins. dia. bears N. 19° W. 30 lks. dist. marked Colo., 60 M., B.T.

Land, rolling.

Soil, rocky and sandy, 3rd rate.

Vegetation, sage, cedar and pinon.

Alt. 6800 ft.

Temp. 50°.

61st mile

S. 89° 52′ E on the tangent to the parallel.

49.58 Darling's 270th mile cor. bears S. 5 chs. A sandstone 5x12x16 ins. [illegible] mound, marked 1868 on W. Other [illegible] indistinct. I destroyed this cor.

Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point,

By 1st set 80.06 chs.,

By 2nd set 79.94 chs.; the mean of which is

6925 ft. 80.00 N. 129 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for the 61st mile cor.

A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 61 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable. This cor. stands on cliff about 40 ft. high, bears NW. and SE.

A cedar tree 12 ins. dia. bears S. 13° 10′ E. 56 lks. dist. marked N.M., 61 M., B.T.

A cross on a sandstone slab 3x6x7 ft. bears

N. 26° 40′ W. 25 lks. dist., marked thus

COLO.
B.O

61 M.

Land, rolling and broken
Soil, rocky and sandy, 3rd rate.
Vegetation, sage, scrub cedar and pinon.
Alt. 6925 ft.
Temp. 60°.

62nd mile

S. 89° 52′ E. on the tangent to the parallel.
Ascend over rocks and through timber.

7000 ft. 10.00 Top of ridge bears NW. and SE.; descend.
25.12 Top of cliffs bears NW. and SE.; descend over rough broken, rocky country.
49.00 After careful search I failed to find Darling's 269th mile cor.
Difference between measurements of 80 chs. by 2 sets of chainmen in 14 lks. position of middle point
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is
6075 ft. 80.00 N. 150 lks. from the tangent,
Set temporary corner. (See page 424.)
Land, rolling and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, sage, scrub cedar and pinon.
Alt. 6075 ft.
Temp. 70°. October 31st. 1902.
At 4h 37m A. M. l.m.t. Nov. 1st, 1902 (having carefully adjusted the transit yesterday afternoon) I observe Polaris at western elongation and mark a point in this line on a plug driven in the ground N. of my station. At 7h A. M. I lay off the azimuth of Polaris 1° 31.1′ to the east and mark a poin' in the true meridian thus found on a plug

driven in the ground N. of my station. The magnetic bearing of the meridian is N. 13° 50′ W. This gives the magnetic variation 13° 50′ E. I now lay off 90° from the meridian from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of 4 sights was used with the instrument reversed at each sight.

63rd mile

East on the tangent to the parallel.

2.00 Leave timber at foot of hills, enter little valley, bears NW. and SE.

7.50 Wagon trail bears NW. and SE.

11.21 Stadia measurement,
Angle 6°+, Rod 9.78 ft. double=1956 ft.×.9891=1934.68 ft.+C.=1.14 ft.=1935.82 ft.=29.33 chs.+11.21 chs.=40.54 chs.

12.00 Dry bed of stream, 10 lks. wide, course SE. Bottom of Cox's Canon.

20.00 Dry gulch, course S.

30.00 Enter timber, leave valley bears N. and S.; ascend.

40.54 On E. Wall of Cox's canon about 300 ft. high, bears N. and S.; ascend over broken rock.
Tape measurement,

49.00 After careful search failed to find Darling's 268th mile cor.
Stadia measurement
Angle 6°+, Rod 9.95 double=1990×.9891=1969.31 ft.+C.=1.14 ft.=1969.45 ft.=29.84 chs.=50.32 chs.=80.16 chs—0.16 chs.=

6575 ft. 80.00 N. .76 of a lk. from the tangent.
Set temporary cor.
Land, rolling and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, grass, sage, cottonwood and scrub cedar and pinon.
Alt. 6575 ft.
Temp. 50°.

64th mile

S. 89° 59′ E. on the tangent to the parallel
Ascend over rocks and through brush.
0.52 On rock cliff bears NW. and SE.
41.00 Rocky gulch near head course NW.
49.00 After careful search I failed to find any trace of Darling's 267th mile cor.
72.00 Top of hill bears N. and S.
6775 ft. 76.30 Brow of river bluff bears NW. and SE.; altitude 6775 ft.
Descend towards Rio Las Animas.
Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is
6650 ft. 80.00 N. 3 lks. from the tangent.
Set temporary cor.
Land, broken and hilly.
Soil, sandy and gravelly, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6650 ft.
Temp. 50°.

65th mile

S. 89° 59′ E. on the tangent to the parallel
Descend steep rocky bluff.
5.00 Dry ravine, course NE.
12.00 On spur slope NE.
6000 ft. 42.00 Foot of bluff bears N. and S.
51.80 Darling's 266th mile cor. bears S. 8 chs., a granite stone 6x6x12 ins. above ground marked C. on N., 266 on E., N.M. on S. and 1868 on W. I destroyed this cor.
6000 ft. 64.00 Brow of bluff bears N. and S.; descend.
Difference between measurements of 65.84 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 65.89 chs.
By 2nd set 65.79 chs.; the mean of which is
5850 ft. 65.84 Point from which astronomical station No. 2 bears S. 10.80 chs.

The latitude of this station by astronomical observations on the nights of Sept. 27th, 28th, 29th and 30th, 1902, was found to be 36° 59′ 50.50″. The point on the 37th degree of North Latitude would fall 14.55 chs. N. of the station. Our falling is 10.80 chs.+6 lks. offset=10.86 chs. N. of the station and 3.69 chs. S. of the true parallel, as indicated by astronomical observations. As this is inside of the limit allowed by the Hon. Commissioner, I erect temporary astronomical monument North 6 lks. from the tangent at this point and continue this line. (See page 426.)

68.00 Foot of bluff bears N. and S. about 100 ft. high.

70.00 Irrigating ditch, course SE.

70.33 Stadia measurement to top of bluff across river,
Angle 11° +, Rod 8.57 double=1714 ft. × .9636=1651.61 ft.+C.=1.12 ft.=1652.73 ft. =25.04 chs.+70.33 chs.=95.37 chs.—80.00 chs.=15.37 on 66th mile.

72.50 Wagon road from Durango to Farmington bears N. and S.

73.00 Fence bears N. and S. Enter D. Doane's dooryard.

73.25 Doane's house about 25 lks. N.

75.00 Log stable 10 lks. S.
As I find that the 80 chs. point will come in the river, therefore at

5775 79.00 N. 7 lks. from the tangent.
Set temporary cor.

80.00 Comes in Rio Las Animas, clear water, swift current, 2 ft. deep, course SE.
Land, rough and broken.
Soil, sandy and stony, 3rd rate.
Vegetation, grass, sage, willow, cottonwood and scrub cedar and pinon.
Alt. 5775 ft.
Temp. 40°. November 1st, 1902.

I examine the adjustments of the transit, compare the steel tape with the standard and find everything correct.

——66th mile——

S. 89° 58′ E. on the tangent to the parallel.

1.00 E bank of Rio Las Animas, course SE.: ascend through dense willow brush.

4.00 Foot of rock cliffs bears NW. and SE.; ascend.

15.37 Stadia point on top of cliffs about 400 ft. high bears NW. and SE. Enter scrub cedar and pinon.

Stadia measurement,

Angle 0°, Rod 7.31 single = 731 ft. + C. = 1.15 = 732.15 ft. = 11.09 chs. + 15.37 chs. = 26.36 chs.

26.36 Stadia point on wall of canon bears NE. and SW.

Stadia measurement,

Angle 1° +, Rod 10.80 double = 2160 ft. × .9997 = 2159.35 ft. + C. = 1.15 ft. = 2160.50 ft. = 32.73 chs. + 26.36 chs. = 59.09 chs.

42.00 Bottom of dry canon about 300 ft. deep, course SW.

59.09 Stadia point on E. wall of canon bears NE. and SW.; ascend by tape measurement.

70.66 Stadia measurement,

Angle 5°, Rod 11.16 single = 1116 ft. × .9924 = 1107.52 ft. + C. = 1.15 ft. = 1108.67 ft. = 16.80 chs. + 70.66 chs. = 87.46 chs. — 80 chs. = 7.46 chs. on 67th mile.

79.00 Bottom of rocky gulch, course NW.; ascend.

80.00 Comes in rocky gulch, impracticable to establish cor. at this point.

Land, very rough, broken and rocky.

Soil, sandy and rocky, 3rd rate.

Vegetation, scrub cedar and pinon.

——67th mile——

S. 89° 57′ E. on the tangent to the parallel.

7.46 Stadia point. Thence by tape measurement.

6650 ft.	10.00	N. 13 lks. from the tangent. Set temporary corner, marked 66.125 M. Altitude 6650 ft. Temp. 48°.
	11.00	Top of spur slope N.
	21.90	Top of spur slope N.; descend.
	27.00	Bottom of rocky canon about 200 ft. deep, course NW.; ascend. Difference between measurements of 70 chs. by 2 sets of chainmen is 8 lks. position of middle point By 1st set 70.04 chs. By 2nd set 69.96 chs.; the mean of which is 70.00 chs. + 10.60 chs.
7000 ft.	80.00	N. 19 lks. from the tangent. Set temporary corner. Land, rough and broken, very rocky. Soil, sandy and rocky, 3rd rate. Vegetation, scrub cedar and pinon. Alt. 7000 ft. Temp. 40°. November 2nd, no line run. Closed for the day, November 3rd, 1902.

I carefully adjust the transit in all its parts, compare the steel tapes with the standard and find them of correct length.

68th mile

S. 89° 57' E. on the tangent to the parallel, over broken rocky country.

40.00	Old trail bears NE. and SW.
52.00	Top of rocky ridge bears NE. and SW.; descend.
60.00	Darling's 263rd mile cor. bears S. 7.10 chs. A sandstone 4x12x20 ins. above ground marked C. on N., 263 on E., and N.M. on S. I destroyed this cor. Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point. By 1st set 80.03 chs.

By 2nd set 79.97 chs.; the mean of which is
6910 ft. 80.00 N. 27 lks. from the tangent.
Set temporary cor.
Land, rolling and broken
Soil, rocky and sandy, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6910 ft.
Temp. 60°.

69th mile

S. 89° 56' E. on the tangent to the parallel.
45.00 Dry ravine, course S.
58.00 After careful search I failed to find Darling's 262nd mile cor.
68.00 Dry gulch, course S.
78.50 Bottom of dry ravine, course SW.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is
6950 ft. 80.00 N. 37 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 69th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N M. on S. and 69 M. stamped in the center.
Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist.
Raised a mound of earth 5 ft. base 2 ft. high around the post.
Aspen a tree 12 ins. dia. bears N. 10° 10' E. 177 lks. dist. marked Colo. 69 M. B.T.
A yellow pine tree 28 ins. dia. bears S. 11° 50' W. 160 lks. dist. marked N.M. 69 M. B.T.
No other trees within limits suitable for bearing trees.
Land, rolling and broken.
Soil, sand and clay, 3rd rate.
Vegetation, scrub cedar and pinon, scattering yellow pine, and spruce and sage brush.

Alt. 6950 ft.
Temp. 50°.

70th mile

S. 89° 55′ E. on the tangent to the parallel. Ascend through timber and brush.

45.00 Top of ridge bears N. and S.; descend.

51.00 Bottom of broad ravine, course SE.

56.55 Darling's 261st mile cor. bears S. 6.00 chs. dist. This is a restored corner. New cedar post properly marked. Darling's old decayed post lying beside it. May not be in original position. I destroyed this cor.

57.00 Flat spur slope S.

64.00 Bottom of dry ravine, course S.; ascend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point

By 1st set 80.02 chs.

By 2nd set 79.98 chs.; the mean of which is

80.00 Falls on rough W. slope. Impracticable to establish cor. at this point.

Land, rolling and broken.

Soil, sand and clay, 3rd rate.

Vegetation, yellow pine, spruce, cedar, pinon and sage brush.

November 4th, 1902.

I examine the adjustments of the transit, compare the steel tapes with the standard and find all correct.

71st mile

S. 89° 55′ E. on the tangent to the parallel. Ascend.

7025 ft. 14.00 N. 51 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 70th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 70.175 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high

around the post. Pits impracticable.
A pinon tree 10 ins. dia. bears N. 71° E. 89 lks. dist. marked Colo., 70.175 M., B.T.
A pinon tree 6 ins. dia. bears S. 31° 40' E. 45 lks. dist. marked N.M., 70.175 M., B.T.
A cedar tree 10 ins. dia. bears S. 54° 40' W. 44 lks. dist. marked N.M., 70.175 M. B.T.
A pinon tree 7 ins. dia. bears N. 66° W. 34 lks. dist. marked Colo., 70.175 M., B.T.
Alt. 7025 ft.
Temp. 48°.
Stadia measurement.
Angle 5° 4', Rod 7.75 double 1550 ft. × .9924 = 1538.22 ft. + C. 1.14 ft. = 1539.36 ft. = 23.32 chs. + 14.00 chs.

37.32 Top of ridge bears N. and S. Descend by tape measurement.

58.00 Failed to find Darling's 360th mile cor.
Difference between measurements of 42.68 chs. by 2 sets of chainmen is nothing, the mean is 42.68 − 37.32 chs.

000 ft. 80.00 N. 62½ lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 71st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 71 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A pinon tree 8 ins. dia. bears N. 35° E. 45 lks. dist. marked Colo., 71 M., B.T.
A pinon tree 12 ins. dia. bears S. 10° W. 180 lks. dist. marked N.M., 71 M. B.T.
No other trees within limits suitable for bearing trees.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass sage, scrub cedar and pinon.
Alt. 7000 ft.
Temp. 62°.

72nd mile

S. 89° 54' E. on the tangent to the parallel.

1.00 Bottom of draw, drains NE.; ascend.

7000 ft. 51.00 Top of ridge bears NE. and SW.; descend.

57.00 Darling's 259th mile cor. bears S. 6.15 chs
A rock in place 6x6x4 ft. marked 259 on E., other marks illegible.
I destroyed the remaining marks.
Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is

6725 ft. 80.00 N. 76 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 72nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 72 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable. This cor. stands on gravelly spur, slope NE.
A cedar tree 12 ins. dia. bears N. 30° E. 37 lks. dist. marked Colo., 72 M., B.T.
A pinon tree 10 ins. dia. bears S. 18° E. 66 lks. dist. marked N.M., 72 M., B.T.
A cedar tree 12 ins. dia. bears S. 45° W. 13 lks. dist. marked N.M., 72 M., B.T.
A cedar tree 12 ins. dia. bears N. 60° W. 60 lks. dist. marked Colo., 72 M., B.T.
Land, rolling.
Soil, sandy and gravelly, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6725 ft.
Temp. 26°.

November 5th, 1902.

I examine the adjustments of the transit, compare the steel tapes with the standard and find all correct.

73rd mile

S. 89° 53' E. on the tangent to the parallel.
Descend.

24.45 Bottom of dry ravine course SE., 100 ft. deep; ascend.

57.25 Darling's 258th mile cor. bears S. 5.88 chs. A sandstone 3x18x22 ins. above ground, in stone mound, marked C. on N., N.M. on S. I destroyed this cor.

*65.00 Top of spur slope S. about 300 ft. above last cor.

70.00 Dry gulch, course S.; ascend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

6750 ft. 80.00 * N. 92 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 73rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 73 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 10 ins. dia. bears N. 24½ E. 31 lks. dist. marked Colo. 73 M., B.T.

A cedar tree 12 ins. dia. bears S. 39° 10' W. 13 lks. dist. marked N.M., 73 M., B.T.

No other trees within limits suitable for bearing trees.

Land, rolling.

Soil, sandy and rocky, 3rd rate.

Vegetation, scrub cedar and pinon.

Alt. 6750 ft.

Temp. 45°.

74th mile

S. 89° 53' E. on the tangent to the parallel.

12.50 Top of ridge bears NW. and SE. about 100 ft. above cor.; descend.

	50.00	Bottom of dry ravine, course SE. 150 ft. deep; ascend.
	57.10	Darling's 257th mile cor. bears S. 6 chs. A sandstone 10x10x13 ins. above ground marked C. on N., 257 on E., N.M. on S., and 1868 on W. I destroyed this corner.
		Difference between measurements of 64.62 chs. by 2 sets of chainmen is 4 lks. position of middle point
		By 1st set 64.64 chs.
		By 2nd set 64.60 chs.; the mean of which is
6830 ft.	64.62	On spur slope S., stadia measurement,
		Angle 4 —, Rod 12.68 single 1268 ft. + .9951 1261.79 ft. + C. 1.15 ft. 1262.94 ft. 19.13 chs. 64.62 chs. 83.75. 3.75 chs. 80.00 chs.
	78.00	Dry ravine course S.; ascend.
6810 ft.	80.00	N. 110 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 74th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 74 M. stamped in the center. Pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A pinon tree 10 ins. dia. bears N. 38 E. 50 lks. dist. marked Colo., 74 M., B.T.
		A pinon tree 12 ins. dia. bears S. 42 20' E. 55 lks. dist. marked N.M. 74 M., B.T
		A cedar tree 10 ins. dia. bears S. 40 20' W. 144 lks. dist. marked N.M. 74 M., B.T.
		No tree NW. within limits suitable for bearing tree.
		Land, rolling and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 6810 ft.
		Temp. 65°.

— 75th mile —

S. 89 52' E. on the tangent to the parallel.

Ascend.

10.00 Top of spur slope S. about 100 ft. high. descend.

44.00 Dry gulch course S.; ascend.

54.50 Top of spur slope S. about 100 ft. high; descend.

61.00 Darling's 256th mile cor. bears S. 6.00 chs. A sandstone 4x10x12 ins. marked 256, other marks indistinct. I destroyed this corner.

62.00 Deserted cabin and corrals about 12 chs. S.

67.00 Bottom of dry canon, course SW., called Pump Canon.

700 ft. 75.00 Dry gulch, course NW.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point

By 1st set 80.05 chs.

By 2nd set 79.95 chs. the mean of which is

750 ft. 80.00 N. 129 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 75th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 75 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 24 ins. dia. bears N. 12° 25' E. 140 lks. dist. marked Colo. 75 M., B.T.

A pinon tree 12 ins. dia. bears N. 15° W. 175 lks. dist. marked Colo., 75 M., B.T.

No trees on other side of line within limits.

Land, rolling and broken.

Soil, sand and clay, 3rd rate

Vegetation, grass, sage, cedar and pinon.

Alt. 6750 ft

Temp. 65°.

76th mile

S. 89° 52' E. on the tangent to the parallel.

10.00 Circular corral about 4 chs. S. Foot of hill bears NW. and SE.; ascend.

5900 ft. 36.00 Top of spar about 150 ft. above last cor.,

slope S., thence along steep rocky S. slope. Difference between measurements of 52.24 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 52.27 chs.

By 2nd set 52.21 chs.; the mean of which is

6900 ft. 52.24 On rocky spur slope S.

Stadia measurement,

Angle 5 +, Rod 8.23 double=1646×.9924=1633.49+C.=1.14 ft.=1634.63 ft.=24.76 chs. +52.24 chs.=77.00 chs.

70.00 Bottom of dry canon 150 ft. deep, course SW. Trail bears NE. and SW.

77.00 Stadia point on E. wall of canon bears NE. and SW.

Tape measurement,

6940 ft. 80.00 N. 150 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 76th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 76 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 8 ins. dia. bears N. 23½ E. 50 lks. dist. marked Colo., 76 M., B.T.

A pinon tree 10 ins. dia. bears S. 44° 40′ E. 64 lks. dist. marked N.M., 76 M., B.T.

A pinon tree 6 ins. dia. bears S. 57° 25′ W. 24 lks. dist. marked N.M., 76 M., B.T.

A cedar tree 12 ins. dia. bears N. 58° W. 35 lks. dist. marked Colo., 76 M., B.T.

Land, rough and broken.

Soil, rocky and sandy, 3rd rate.

Vegetation, cedar and pinon.

Alt. 6940 ft.

Temp. 34°.

November 6th, 1902.

I examine the adjustments of the transit and compare the steel tapes with the standard; find all correct and in adjustment.

77th mile

S. 89° 51′ E. on the tangent to the parallel.
Ascend.

7000 ft. 18.00 Top of high ridge bears NW. and SE.; descend.

50.00 Bottom of deep dry ravine, course SE. 200 ft. deep; ascend along steep brushy N. slope

60.00 Top of spur slope N. about 100 ft. above bottom of ravine.

Difference between measurement of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is

6800 ft. 80.00 Falls in deep rocky dry ravine, course NW. Impracticable to establish the cor. at this point.

Land, rough and broken.

Soil, rocky, sand and clay, 3rd rate.

Vegetation, scrub cedar and pinon.

78th mile

S. 89° 50′ E. on the tangent to the parallel.
Ascend steep bluff.

6910 ft. 10.00 N. 175 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 77th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N.; N.M. on S. and 77.125 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A cedar tree 14 ins. dia. bears N. 19° E. 15 lks. dist. marked Colo., 77.125 M., B.T.

A cedar tree 8 ins. dia. bears S. 77° 45′ E. 45 lks. dist. marked N.M., 77.125 M., B.T.

A cedar tree 10 ins. dia. bears S. 43½° W. 42 lks. dist. marked N.M., 77.125 M., B.T.

A cedar tree 14 ins. dia. bears N. 30° 40′ W. 35 lks. dist. marked Colo., 77.125 M., B.T.

7100 ft. 20.00 Top of spur slope N.; descend along N. slope.

40.00 Top of spur slope N.; descend.
Difference between measurements of 70 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 70.03 chs.
By 2nd set 69.97 chs.; the mean of which is 70.00+10.00 chs =

7000 ft. 80.00 N. 196 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 78th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 78 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 12 ins. dia. bears N. 15° E. 43 lks. dist. marked Colo., 78 M., B.T.
A pinon tree 10 ins. dia. bears S. 75° W. 42 lks. dist marked N.M., 78 M., B.T.
No other trees within limits suitable for bearing trees.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 7000 ft.
Temp. 65°.

79th mile

S. 89° 50' E. on the tangent to the parallel; descend along N. slope.

59.50 A sandstone 14x12x8 ins. above ground bears S. 7.00 chs. dist. marked C.C., Col. on N., R. 7 on E., T. 32 N., N.M. on S., and R 8 on W. faces. I leave this cor. as I find it. After careful search both E and W. of this stone, I failed to find any cor. bearing the Darling marks.

62.00 Top of spur slope N.; descend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.

By 2nd set 79.98 chs.; the mean of which is
5 ft. 80.00 N. 221 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for the 79th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 79 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high, around the post. Pits impracticable.
A cedar tree 6 ins. dia. bears S. 35 E. 19 lks. dist. marked N.M., 79 M., B.T.
A pinon tree 10 ins. dia. bears N. 10 W. 46 lks. dist. marked Colo., 79 M., B.T.
No other trees within limits suitable for bearing trees.
This cor. stands on E. side of low spur slope N.
Land, rolling.
Soil, rocky and sandy, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6825 ft.
Temp. 55 .

November 7th, 1902.

——80th mile——

S. 89° 49' E. on the tangent to the parallel.
Descend.
1.00 Dry gulch course N.; ascend.
4.00 Top of spur slope N.; descend.
24.30 Top of river bluff, bears N. and S.; descend.
28.00 Leave timber bears N. and S., enter sage brush.
0 ft. 37.00 Foot of bluff about 100 ft. high, bears N. and S., thence across sage flat.
0 ft. 50.00 Top 2nd bluff bears NW. and SE. According to Darling's field notes his 251st mile cor. should stand on the brow of this bluff. After careful search I failed to find any trace of it.
Descend.
5 ft. 52.00 Foot of rocky bluff about 75 ft. high, bears N. and S.

Enter meadow on river bottom.

6075 ft. 61.50 W. bank of Las Pinos River, course S. about 2 chs. then W. to foot of bluff, then S. Stadia measurement across stream.

62.85 E. bank of river, 3 ft. high, course S. about 5 chs. then W. about parallel to opposite bank, clear water about 2 ft. deep; enter willow and cottonwood brush.

65.00 Leave brush, enter meadow; Rodriguez's field bears N. and S.

68.80 Wire fence bears N. and S. Rodriguez's house about 4 chs. SW.

69.25 Center of road bears N. and S. from Ignacio to the San Juan River settlements.
La Boca station on the D. & R. G. W., R. R. about 1/2 mile N., La Boca P.O. Mexican set tlement, about 1/2 dozen adobe houses about 10 chs. S.; ascend.

69.75 Irrigation ditch, course S.

72.00 Top of bluff about 75 ft. high bears N. and S.

73.80 Wagon road bears NE. and SW.

Difference between measurements of 78.65 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 78.67 chs.
By 2nd set 78.63 chs.; the mean of which is 78.65 chs.+1.35 chs. (Distance across the river)=

6130 ft. 80.00 N. 247 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 80th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 80 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
E. edge of rocky hill bears N. 39° E. about 1 mile dist.
Center of round peak bears S. 84° 36' E. about 2 miles distant.
A conical peak covered with timber bears S. 9° E. about 1 mile distant.

N. edge of partly timbered gray peak bears N. 79° 50′ W. about 2 miles distant.
This cor. stands on first bench above the river at head of little draw that drains S
Land, broken, valley and mesa.
Soil, rocky, clay and sand, 3rd rate.
Vegetation, grass, sage, willow and cotton wood.
Alt. 6130 ft.
Temp. 70°.

November 8th, 1902

Nov. 9th, at 4h 05m A.M. l.m.t. (after having carefully adjusted the transit last evening) I observe Polaris at western elongation, and mark a point in the line on a plug driven in the ground about 10 chs. N. of my station. At 7h A. M. Nov. 9th, 1902, I lay off the azimuth of Polaris 1° 30.9′ to the E. and mark a point in the true meridian thus found on a plug driven in the ground 10 chs. N. of my station.
The magnetic bearing of the meridian is N. 13° 50′ W.
This gives magnetic variation 13° 50′ E.
I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.
In all these observations and the subsequent turning of angles the mean of 4 sights was used, with the telescope reversed at each sight.
I compare the steel tapes with the standard and find them of correct length.

——81st mile——

East on the tangent to the parallel.

4.00 Top of spur slope S.; descend.

11.00 Dry ravine course SW.; ascend gradually.

50.00 After a careful search I failed to find any tract of Darling's 250th mile cor.

6160 ft.	73.00	Foot of hills bears NE. and SW.; leave velley, enter timber; ascend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
6210 ft.	80.00	N. .76 of a link from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 81st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 81 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A cedar tree 12 ins. dia. bears N. 50° E. 84 lks. dist. marked Colo., 81 M., B.T.
		A cedar tree 10 ins. dia. bears S. 48° E. 67 lks. dist. marked N.M. 81 M., B.T.
		A cedar tree 12 ins. dia. bears S. 31½° W. 45 lks. dist. marked N.M., 81 M., B.T.
		A cedar tree 10 ins. dia. bears N. 59° 20′ W. 98 lks. dist. marked Colo., 81 M., B.T.
		Land, rolling.
		Soil, sand and clay, 3rd rate
		Vegetation, grass, sage, scrub cedar and pinon.
		Alt. 6210 ft.
		Temp. 35°.

——82nd mile——

		S. 89° 59′ E. on the tangent to the parallel. Ascend through scrub cedar and pinon timber.
	16.60	Top of spur slope N. Thence along N. slope.
6875 ft.	60.00	Top of ridge bears NE. and SW.; descend along S. slope.
	70.00	Bottom of ravine near head, course S.; ascend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is
6340 ft. 80.00 N. 12 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 82nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 82 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 11 ins. dia. bears N. 27° 45′ E. 29 lks. dist. marked Colo., 82 M., B.T.
A cedar tree 8 ins. dia. bears S. 21½° E. 49 lks. dist. marked N.M., 82 M., B.T.
A pinon tree 10 ins. dia. bears S. 36½° W. 35 lks. dist. marked N.M., 82 M., B.T.
A cedar tree 11 ins. dia. bears N. 46° 10′ W. 42 lks. dist. marked Colo., 82 M., B.T.
This cor. stands on brow of bluff sloping SW.
Land, rolling.
Soil, rocky and sandy, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6840 ft.
Temp. 76°.

——83rd mile——

S. 89° 59′ E. on the tangent to the parallel
6840 ft. 12.00 Top of ridge bears NW. and SE.
24.00 Top of ridge bears NW. and SE.
Stadia measurement,
Angle 3′ —, Rod 11.54 double=2308 ft.×.9973=2301.77 ft.+C.=1.15 ft.=2302.92 ft.=34.89 chs.+24.00 chs.=58.80 chs.
50.90 Darling's 248th mile cor. bears S. 8.15 chs. dist. A decayed cedar post marked C. on N., 248 on E., and N.M. on S. I destroyed this cor.
6550 ft. 52.00 Bottom of ravine course SE.; ascend.
6650 ft. 58.89 Stadia point on cliffs about 100 ft. high, bear NW. and SE.
Tape measurement,

6650 ft.	61.00	On wall of canon, bears NE. and SW.; descend.
		Difference between measurements of 45.11 chs. by 2 sets of chainmen is 4 lks. position of middle point
		By 1st set 45.13 chs.
		By 2nd set 45.09 chs.; the mean of which is 45.11 chs. +34.89 chs.
6575 ft.	80.00	N. 7 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 83rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on W., N.M. on S. and 83 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		A cedar tree 10 ins. dia. bears N. 5° W. 43 lks. dist. marked Colo., 83 M., B.T.
		A cedar tree 8 ins. dia. bears S. 58½° E. 55 lks. dist. marked N.M., 83 M., B.T.
		A pinon tree 6 ins. dia. bears S. 30° 25' W. 61 lks. dist. marked N.M., 83 M., B.T.
		A cedar tree 7 ins. dia. bears N. 61½° W. 60 lks. dist. marked Colo., 83 M., B.T.
		This cor. stands on flat in thick timber.
		Land, rolling and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, sage, scrub cedar and pinon.
		Alt. 6575 ft.
		Temp. 60°.

——84th mile——

S. 89° 58' E. on the tangent to the parallel.

6575 ft.	7.08	On top of cliff, wall bears NE. and SW.; descend.
		Stadia measurement,
		Angle 5°—, Rod 8.85 double=1770 ft.×.9924=1756.55 ft.+C.=1.14 ft.=1757.69 ft.=26.63 chs.+7.08 chs.=33.71 chs.
	12.00	Foot of cliffs about 150 ft high, bear NE. and SW.

18.00 Dry gulch course NE.: ascend along S. slope.

33.71 Stadia point.
Stadia measurement,
Angle 6° +, Rod 9.23 double=1846 ft.× .9891=1825.88 ft.+C.=1.14 ft.=1827.02 ft. =27.68 chs.×33.71 chs.=61.39 chs.

46.00 Top of spur slope N.

46.70 Darling's 247th mile cor. bears S. 8.53 chs. A sandstone 18x10x5 ins. above ground marked C. on N., 247 on E., N.M. on S., 1868 on W. has been reset in a mound with pits and bearing trees. I destroyed this cor.

61.39 Stadia point, thence by tape measurement.

6480 ft. 73.23 On top of bluff, wall of rocks bears S. and N. about 3 chs. then NW.: descend.
Stadia measurement,
Angle 29° —, Rod 4.20 single=420 ft.×.7650 =321.30 ft.+C.=1.00=322.30=4.88 chs.+ 73.23 chs.=78.11 chs.

78.11 Stadia point thence by tape measurement.

6340 ft. 80.00 N. 12 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 84th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 84 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A cedar tree 8 ins. dia. bears N. 45½° E. 43 lks. dist. marked Colo., 84 M., B. T.
A cedar 12 ins. dia. bears S. 33° E. 68 lks. dist, marked N.M., 84 M., B.T.
A cedar tree 6 ins. dia. bears N. 71° 10′ W. 43 lks. dist. marked Colo., 84 M., B.T.
No tree SW. within limits suitable for bearing tree.
This cor. stands near foot of cliffs about 150 ft. high that bear N. and S.
Land, rough and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, sage, scrub cedar and pinon.

Alt. 6340 ft.
Temp. 50 .

November 9th, 1902.

I examine the levels and collimation of the transit, compare the steel tapes with the standard and find all correct and in adjustment.

85th mile

S. 89 57' E. on the tangent to the parallel.
Descend.

6.00 Foot of bad land slope, 50 ft. below cor., bears N. and S.
Leave timber, enter sage brush valley, bears N. and S.

14.00 Dry gulch, course NE.

47.00 Darling's 246th mile cor. bears S. 8.76 chs. An old decayed post re-set with a new one beside it, marked C. on N., 246 on E., N.M. on S., 1868 on W. I destroyed this cor.

58.00 Dry gulch from NW. course E., thence down general course of same.
Difference between measurements of 80 chs. by 2 sets of chainmen is nothing, the mean is

6150 ft. 80.00 N. 19 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 85th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 85 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
A conical peak covered with timber bears N. 32° 45' E.
A conical point on Conejos Range bears N. 86° 40' E.
A N. salient of S. bluff bears S. 49° 50' E.
A N. salient of high ridge we have passed over bears N. 75° 35' W.

Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass, sage and scattering timber.
Alt. 6150 ft.
Temp. 58°.

86th mile

S. 89° 57' E. on the tangent to the parallel.
Down the general course of dry arroyo.

20.00 Leave arroyo, course NE.

47.00 Darling's 245th mile cor. bears S. 8.60 chs. An old post with new one beside it, marked C. on N., 245 on E., N.M. on S.; I destroyed this cor.

59.50 Same arroyo in rocky canon, course SE.

65.00 Same arroyo in canon, course NE.

Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 80.01 chs.

By 2 nd set 79.99 chs.; the mean of which is

6127 ft. 80.00 N. 27 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 86th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 86 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

The section house at Vallejo station on D. & R. G. W. R. R. bears N. 0° 30' W. about 1 mile dist.

Conical timbered peak bears N. 23° 38' E.

N. salient of S. bluff bears S. 23° 40' E.

Tree on conical peak S. of San Juan River bears S. 48° 24' E.

Land, gently rolling.

Soil, sand and clay, 3rd rate.

Vegetation, grass and sage.

Alt. 6127 ft.
Temp. 70°.

87th mile

S. 89° 56' E. on the tangent to the parallel.

7.50 Dry arroyo, course N.

47.05 Darling's 244th mile cor. bears S. 8.55 chs. New post and small sandstone. Post marked C. on N., 244 on E., N.M. on S.; I destroyed this cor.

52.00 Road bears NW. and SE.

Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is

6110 ft. 80.00 N. 37 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 87th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 87 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft high around the post.

Cone shaped timbered peak bears N. 13° 40' E.

Tree on top of cone shaped peak S. of San Juan River bears S. 38° 40' E.

E. end of high bluff bears S. 7° 30' W.

N. salient of high ridge that the line passed over bears N. 81° 30' W.

Land, gently rolling.

Soil, sand and clay, 3rd rate.

Vegetation, grass, sage and greasewood.

Alt. 6110 ft.

Temp. 75°.

88th mile

S. 89° 55' E. on the tangent to the parallel.

Over rolling lands.

5.00 Dry arroyo, course SE.; small pond or reservoir about ½ mile SE.

42.00 Top of spur slope S.; descend.
47.38 Darling's 243rd mile cor. bears S. 8.00 chs. A sandstone top broken off marked 243; I destroy this cor.
52.00 Dry bed of creek 100 lks. wide, course SW.; ascend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is
6200 ft. 80.00 N. 49 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 88th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 88 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. Raised a mound of earth 5 ft. base 2 ft. high around the post.
Cone-shaped timbered peak bears N. 2° 08' E.
E. end of bluff bears S. 48° 10' W.
N. salient of high ridge back on line bears N. 83° 09' W.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass, sage and greasewood.
Alt. 6200 ft.
Temp. 74°.

——89th mile——

S. 89° 55' E. on the tangent to the parallel. Ascend.
16.00 Enter scattering timber bears N. and S.
25.00 On mesa bears NE. and SW.
31.50 Wagon road bears NW. and SE.
47.00 After a careful search I failed to find Darling's 242nd mile cor.
61.00 Wagon road bears NW. and SE.
Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position

of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is
6230 ft. 80.00 N. 62 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 89th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 89 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A pinon tree 10 ins. dia. bears N. 77° 35' E. 98 lks. dist. marked Colo., 89 M., B.T.
A cedar tree 10 ins. dia. bears S. 18° E. 88 lks. dist. marked N.M., 89 M., B.T.
A cedar tree 12 ins. dia. bears N. 51° W. 200 lks. dist. marked Colo., 89 M., B.T.
No tree SW. within limits suitable for bearing tree.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass, sage, scattering scrub cedar and pinon.
Alt. 6230 ft.
Temp. 68°.

——90th mile——

S. 89° 54' E. on the tangent to the parallel.
8.50 Brow of bluff bears NE. and SW.; descend.
27.50 Bottom of ravine about 150 ft. deep, course SW.; ascend.
6180 ft. 35.00 Top of bluff bears NE. and SW. D. & R. G. W. R. R. track about 10 chs. N. Failed to find Darling's 241st mile cor.
6180 ft. 45.47 Top of river bluff, bears NE. and SW.
Stadia measurement,
Angle 4'—, Rod 8.51 double =1702 ft.×.9951 =1693.66 ft.+C.=1.15 ft.=1694.81 ft.= 25.68 chs.+45.47 chs.=71.15 chs.
53.30 W. edge of water in San Juan River, about 100 ft. below top of bluff, course SW.

	55.00	E. bank of river, course SW.; clear water, 3 ft. deep; enter willow and cottonwood brush. Abeytia's house about 10 chs. SW.
	66.00	Enter cultivated field bears NE. and SW.; property of J. J. Abeytia.
	71.15	Stadia point.
		Tape measurement,
	72.20	Irrigation ditch, course SW.
		Difference between measurements of 54.32 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 54.33 chs.
		By 2nd set 54.31 chs.; the mean of which is 54.32 chs.+25.68 chs.=
6100 ft.	80.00	N. 76 lks., from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 90th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. N.M. on S. and 90 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		This cor. stands in cultivated field.
		A cottonwood tree 6 ins. dia. bears N. 68 40′ E. 435 lks. dist. marked Colo., 90 M., B. T.
		A cottonwood tree 18 ins. dia. bears N. 74 50′ W. 301 lks. dist. marked Colo., 90 M., B.T.
		No trees S. of line along here.
		Rosa P. O. a Mexican settlement about 60 chs. SW.
		Land, mesa and river bottom.
		Soil, sand and clay, 2nd and 3rd rate.
		Vegetation, grass, sage, greasewood and willow, cottonwood and pinon and cedar on bluff.
		Alt. 6100 ft.
		Temp. 60°.

November 10th, 1902.

——91st mile——

I examine the transit and find it in adjustment, compare the steel tapes with standard and find them of correct length.

S. 89° 53' E. on the tangent to the parallel.

18.25 Irrigating ditch, course SW. Leave irrigated land; ascend over rolling sagebrush valley, bears NE. and SW.

22.00 Wagon road bears NE. and SW.

32.75 Wagon road bears NE. and SW.

42.80 Wagon road bears NE. and SW., from Rosa to Arboles.

47.00 After careful search I failed to find Darling's 240th mile cor.

6200 ft. 65.00 Foot of hills, leave valley of the San Juan bears NE. and SW. Enter timber; ascend. Difference between measurements of 72.45 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 72.46 chs.

By 2nd set 72.44 chs.; the mean of which is 72.45 chs.

72.45 Top of spur, slope S.

Stadia measurement,

Angle 14° +, Rod 11.40 single=1140 ft.× .9415=1073.31 ft.+C.=1.11 ft.=1074.42 ft. =16.28 chs.+72.45 chs.=88.73 chs.—80.00 chs.—8.73 chs. on 92nd mile.

80.00 Falls on steep slide bank. Impracticable to establish corner at this point.

Land, valley and rough hills.

Soil, sand and clay, 2nd and 3rd rate.

Vegetation, grass, sage, scrub cedar and pinon.

——92nd mile——

S. 89° 53' E. on the tangent to the parallel.

6610 ft. 8.73 N. 94 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 91st mile cor. A brass cap on the top of the

pipe has raised letters Colo. on N., N.M. on S. and 91.109 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A cedar tree 13 ins. dia. bears N. 13° 80′ E. 31 lks. dist. marked Colo., 91.109 M., B.T.
A pinon tree 5 ins. dia. bears S. 6° 05′ E. 31 lks. dist. marked N.M., 91.109 M., B.T.
No other trees within limits suitable for bearing trees.
Arboles R. R. station and mouth of Piedras River about a mile a little W. of N.
This cor. stands on sharp spur sloping W.
Steep slide bank on S.
Alt. 6610 ft.
Temp 70°.
Stadia measurement,
Angle 13° +, Rod 9.53 single=953 ft.×.9494 =904.78 ft.+C.=1.12 ft.=905.90 ft.=13.72 chs.+8.73 chs.=22.45 chs.

6180 ft. 22.45 On sharp spur slope S.; descend.
Stadia measurement,
Angle 2° —, Rod 13.20 single=1320 ft.×.9988 =1318.42 ft.+C.=1.15 ft.=1319.57 ft.= 19.99 chs.+22.45 chs.=42.44 chs.

6700 ft. 28.00 Bottom of dry ravine, course NE.
42.44 On spur slope N.; descend.
Stadia measurement,
Angle 3° —, Rod 42.30 double=2460 ft.× .9973+2453.36 ft.+C.=1.15 ft.=2454.51 ft.= 37.19 chs.+42.44 chs.=79.63 chs.
65.00 Bottom of dry ravine, 200 ft. deep, course NW.; ascend.
79.63 Stadia point, thence by tape measurement.

6800 ft. 80.00 N. 110 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 92nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 92 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.
This cor. stands on spur sloping N.
A pinon tree 6 ins. dia. bears N. 63½ E. 44 lks. dist. marked Colo., 92 M., B.T.
A pinon tree 7 ins. dia. bears S. 18° 45′ E. 39 lks. dist. marked N.M., 92 M., B.T.
A cedar tree 9 ins. dia. bears S. 59° W. 36 lks. dist. marked N.M., 92 M., B. T.
A cedar tree 7 ins. dia. bears N. 25¼° W. 41 lks. dist. marked Colo., 92 M., B. T.
Land, very rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, cedar and pinon.
Alt. 6800 ft.
Temp 45°.

November 11th, 1902.

November 12th, rained all day, no line run.

November 13th, I examine the transit and find it in adjustment, compare the tapes with the standard and find them of correct length.

93rd mile

S. 89° 52′ E. on the tangent to the parallel.
Stadia measurement,
Angle 12°+, Rod 13.30 double=2600 ft.× .9568=2487.68 ft.+C.=1.1° ft.=2488.80 ft. =37.70 chs.

37.70 Stadia point, thence by tape measurement: ascend.

44.00 Top of high spur slope N., thence along steep brushy N. slope.

Difference between measurements of 42.30 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 42.32 chs.
By 2nd set 42.28 chs.; the mean of which is 42.30 chs.=37.70 chs.=

80.00 Falls on steep N. slope in dense oak under-

brush, impracticable to establish the cor. at this point.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, cedar, pinon and oak brush.

94th mile—

S. 89° 52' E. on the tangent to the parallel.
Ascend along steep N. slope.

7500 ft. 8.00 N. 131 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 93rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 93.1 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable.
This cor. stands on spur sloping N.
A pinon tree 5 ins. dia. bears N. 65° W. 99 lks. dist. marked Colo., 93.1 M., B.T.
A sandstone in place 6x6x5 ft., a cross (X) on the face of which bears S. 45° W. 110 lks. dist. mkd. N.M., 93.1 M., B.O.
No other trees or objects within limits suitable for bearing trees.
This cor. stands on steep N. slope about 150 lks. down from the top of the bluff.
Alt. 7500 ft.
Temp. 48°.
Thence along N. slope of bluff about 1400 ft. above the San Juan River.

40.00 Top of spur slope N.
Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is

7500 ft. 80.00 N. 150 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 94th mile cor. A brass cap on the top of the

pipe has raised letters Colo. on N., N.M. on S. and 94 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable.
No bearing trees.
Land, rolling and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, scrub cedar, pinon and oak brush.
Alt. 7500 ft.
Temp. 40°.

95th mile

S. 89° 51' E. on the tangent to the parallel.
Along steep N. slope of bluff.

7500 ft. 32.00 Top of spur slope NE.; descend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 14 lks. position of middle point
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is

7125 ft. 80.00 N. 17' 2 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 95th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 95 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A yellow pine 14 ins. dia. bears N. 70° E. 110 lks. dist. marked Colo., 95 M., B.T.
A yellow pine tree 14 ins. dia. bears S. 30° W. 85 lks. dist. marked N.M., 95 M., B.T.
A yellow pine tree 10 ins. dia. bears N. 6° W. 82 lks. dist. marked Colo., 95 M., B.T.
No tree SW., within limit suitable for bearing tree.
Land, rolling and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, cedar, pinon, yellow pine and oak brush.

Alt. 7125 ft.
Temp. 40°.

November 13th, 1902.

I examine the adjustments of the transit, compare the steel tapes with the standard and find all correct.

—96th mile—

S. 89° 50′ E. on the tangent to the parallel.

18.81 On bluff bears NE. and SW.; descend.
Stadia measurement,
Angle 6° —, Rod 8.69 double=1738 ft.×.9891 =1719.06 ft.+C.=1.14 ft.=1720.20 ft.=26.06 chs.+18.81 chs.=44.87 chs.

28.00 Bottom of ravine, course NE.; ascend.

44.87 Stadia point, top of spur slope N.
Tape measurement,
Difference between measurements of 35.13 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 35.15 chs.
By 2nd set 35.11 chs.; the mean of which is 35.13 chs.+44.87 chs.=

80.00 Falls on steep brushy hillside. Impracticable to establish the cor. at this point.
Land, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, cedar, pinon, yellow pine and oak brush.

—97th mile—

S. 89° 50′ E. on the tangent to the parallel.

6800 ft. 12.00 N. 200 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 96th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 96.45 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A cedar tree 10 ins. dia. bears N. 12° 45′ E. 62 lks. dist. marked Colo., 96.15 M., B.T.
A cedar tree 12 ins. dia. bears S. 72° E. 69 lks. dist. marked N.M., 96.15 M., B.T.
A pinon tree 5 ins. dia. bears S. 87° 40′ W. 92 lks. dist. marked N.M., 96.15 M., B.T.
A cedar tree 8 ins. dia. bears N. 31° W. 46 lks. dist. marked Colo., 96.15 M., B.T.
This cor. stands on rocky spur slope N.
Alt. 6800 ft.
Temp. 54°.
Descending along N. slope over spurs.

75.00 Dry gulch, course NE.

Difference between measurements of 68 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 68.04 chs.
By 2nd set 67.96 chs.; the mean of which is 68.00 chs. + 12.00 chs. =

6810 ft. 80.00 N. 221 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 97th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 97 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A cedar tree 8 ins. dia. bears N. 37° E. 71 lks. dist. marked Colo., 97 M., B.T.
A yellow pine tree 13 ins. dia. bears S. 30½° E. 151 lks. dist. marked N.M., 97 M., B.T.
A cedar tree 8 ins. dia. bears S. 31° 20′ W. 45 lks. dist. marked N.M., 97 M., B.T.
A pinon tree 6 ins. dia. bears N. 13° W. 74 lks. dist. marked Colo., 97 M., B.T.
Land, rolling and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, cedar, pinon, yellow pine, oak brush.
Alt. 6810 ft.
Temp. 50°.

98th mile

S. 89° 49' E. on the tangent to the parallel.

Ascend.

18.50 Top of spur slope N. Thence descending along N. slope over spur.

6200 ft. 72.00 Foot of hills enter San Juan Valley, bears NW. and SE.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point,

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which is

6200 ft. 80.00 N. 247 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 98th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 98 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.

A cottonwood tree 24 ins. dia. bears N. 58° 35' E. 86 lks. dist. marked Colo., 98 M., B.T.

A cottonwood tree 14 ins. dia. bears S. 32½° E. 140 lks. dist. marked N.M., 98 M., B.T.

A cottonwood tree 14 ins. dia. bears S. 43° 20' W. 115 lks. dist. marked N.M., 98 M., B.T.

A cottonwood tree 15 ins. dia. bears N. 24½° W. 78 lks. dist. marked Colo., 98 M., B.T.

Land, rolling and valley.

Soil, clay and sandy loam, 2nd and 3rd rate.

Vegetation, grass, cedar, pinon, yellow pine and cottonwood timber; cottonwood, willow, sage and oak brush.

Alt. 6200 ft.

Temp. 40°.

November 14th, 1902.

Nov. 15th, at 3h 42m A. M. l.m.t., (having previously examined the transit and found it in perfect adjustment), I observe Polaris at western elongation and mark a point in

the line on a plug driven in the ground N. of my station.

At 7h A. M. I lay off the azimuth of Polaris 1° 31.1′ to the E. and mark a point in the true meridian thus found on a plug driven in the ground N. of my station.

The magnetic bearing of the meridian is N. 13° 50′ W. This gives the magnetic variation 13° 50′ E.

I now lay off an angle of 90° from the meridian to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles the mean of 4 sights was used, with the telescope reversed at each sight.

99th mile

East on the tangent to the parallel.

2.64 W. bank of the San Juan River bears N. and S., bank 8 ft high.

3.64 Across river to sand bar; E. edge of water bears NE. and SE., clear water about 2½ ft deep, swift current.

9.27 E. bank of river bears NW. and SW. 6 ft. high; enter dense willow and cottonwood brush.

14.00 Leave brush; enter cultivated field, bears NW. and SE.

16.20 Wire fence bears N. and S. Enter cornfield.

21.85 Leave field; enter willow brush, bears NE. and SW.

27.00 Leave brush and enter cultivated field bears NE. and SW.

33.00 Leave field; enter brush bears N. and S.

39.60 Leave brush; enter cultivated field bears N. and S.

46.00 Mexican adobe building bears 6.00 chs. S.

52.00 Leave cultivated field and enter timber and brush, bears N. and S.

60.00 Enter same field bears NW. and SE.

65.00 Mexican adobe house about 3 chs. N. Stable about 2 chs. S.

Difference between measurements of 66.22 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 66.23 chs.

By 2nd set 66.21 chs.; the mean of which is

66.22 W. bank of San Juan River, bears NE. and SW.; course of river SW.

Stadia measurement across river.

Angle 0°, Rod 7.17 double .1434 ft. + C. 1.15 ft. = 1435.15 ft. = 21.74 chs. + 66.22 chs. = 87.96 chs. = 80.00 chs. + 7.96 chs. on the 100th mile.

80.00 Falls in the river, impracticable to establish the cor. at this point.

Land, valley, nearly level.

Soil, sandy loam, 2nd rate.

Vegetation, cottonwood and willow.

100th mile

S. 89° 59' E. on the tangent to the parallel.

7.50 E. edge of water in river, course NW.

7.96 Stadia point in road bears NW. and SE.

Tape measurement.

00 ft. 8.26 N. 1 link from the tangent.

Set an iron pipe 3 in. dia. 5 ft. long with flanges at the bottom 2 ft. in the ground for 99th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 99.103 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A cottonwood tree 24 ins. dia. bears N. 30° E. 125 lks. dist. marked Colo., 99.103 M., B.T.

A cottonwood tree 24 ins. dia. bears N. 34° W. 162 lks. dist. marked Colo., 99.103 M., B.T.

No tree on other side except those across the river.

Alt. 6200 ft.

Temp. 50°.

The section house at Carracas station on the D. & R. G. W. R. R. about 12.00 chs. NW.
Thence along river bottom through willow brush and cottonwood timber.

31.00 Old log stable on line, Mexican adobe house about 10 chs. SE.
Difference between measurements of 29.37 chs. by 2 sets of chainmen is nothing; the mean is 29.35 + 8.26 chs.

37.61 Stadia measurement from this point,
Angle 0°, Rod 7.06 ft. double =1412 ft. + C. 1.15 ft. = 1413.15 ft. = 21.41 chs. + 37.61 chs. = 59.02 chs.

38.00 Right bank of San Juan River, course SW.

39.40 Left bank on sand bar from NE. to SW.

59.00 Edge of water in river course NW.; thence across bend.

59.02 On left bank of river 8 ft. high bears NE. and SW.
Tape measurement.

60.00 Road bears NE. and SW.

70.29 River bank course N.
Stadia measurement across river,
Angle 0°, Rod 4 ft. single = 400 ft. + C. = 1.15 ft. = 401.15 ft = 6.08 chs. + 70.29 chs. = 76.37 chs.

74.00 On E. bank of river, water flows N. Enter timber and brush.

76.37 Stadia point.
Tape measurement.

6230 ft. 80.00 N. 3 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 100th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 100 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist.
Raised a mound of earth 5 ft. base 2 ft. high around the post.
A cottonwood tree 20 ins. dia. bears N. 41½ E. 42 lks. dist. marked Colo., 100 M., B.T.

A cottonwood tree 6 ins. dia. bears S. 55 20′ E. 86 lks. dist. marked N.M., 100 M., B.T.
A cottonwood tree 10 ins. dia. bears S. 46 W. 61 lks. dist. marked N.M., 100 M., B.T.
A cottonwood tree 13 ins. dia. bears N. 43 40′ W. 141 lks. dist. marked Colo., 100 M., B.T.
About 10 chs. S. to river.
Land, river bottom.
Soil, sandy loam, 2nd rate.
Vegetation, cottonwood, willow and sage brush.
Alt. 6230 ft.
Temp. 65°.

——10th mile——

S. 89° 59′ E. on the tangent to the parallel.

12.80 W. bank of river bears NE. and SW. Water flows SW.
Stadia measurement across river,
Angle 0°, Rod 1.70 single=170 ft.+C.=1.15 ft.=171.15 ft.=2.59 chs.+12.80 chs.=15.39 chs.

15.39 E. bank of river bears NE. and SW. Foot of hill bears NE. and SW. Leave San Juan River valley; ascend.
Tape measurement,

6330 ft. 30.12 Top of spur slope N. 100 ft. above river; descend.

6230 ft. 35.50 Bottom of dry ravine, 100 ft. deep, course from SE. to N.; ascend.

6380 ft. 61.00 Top of rocky spur slope S.; descend.
Difference between measurements of 64.61 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 64.63 chs.
By 2nd set 64.59 chs.; the mean of which is 64.61 chs.+15.39 chs.=

6350 ft. 80.00 Falls in rocky gulch, course S. impracticable to establish the cor. at this point.
Land, rough and broken.

Soil, rocky and sandy, 3rd rate.
Vegetation, sage and oak brush, cedar and pinon timber.

November 15th, 1902.

——102nd mile——

S. 89° 58′ E. on the tangent to the parallel.
Ascend.

6510 ft. 16.00 N. 8 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 101st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 101.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. around the post. Pits impracticable.
A cedar tree 8 ins. dia. bears N. 62° E. 65 lks. dist. marked Colo., 101.2 M., B.T.
A cedar tr 14 ins. dia. bears S. 22½° E. 43 lks. dist. marked N.M., 101.2 M., B.T.
A cedar tree 12 ins. dia. bears S. 71° 40′ W. 89 lks. dist. marked N.M., 101.2 M., B.T.
A pinon tree 7 ins. dia. bears N. 48° 20′ W. 57 lks. dist. marked Colo., 101.2 M., B.T.
This cor. stands on spur sloping S.
Alt. 6510 ft.
Temp. 46°.

25.00 Dry ravine course SW.

6800 ft. 64.00 Top of high ridge bears N. and S. Altitude 6800 ft.
Descend.
Difference between measurements of 64.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 64.03 chs.
By 2nd set 63.97 chs.: the mean of which is 64.00 chs. + 16.00 chs.

6790 ft. 80.00 N. 12 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 102nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M.

on S. and 102 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine 14 ins. dia. bears N. 15 E. 9 lks. dist. marked Colo., 102 M., B.T.
A yellow pine 14 ins. dia., bears S. 29° 20′ E. 34 lks. dist. marked N.M., 102 M., B.T.
A yellow pine 14 ins. dia. bears S. 44° 40′ W. 70 lks. dist. marked N.M., 102 M., B.T.
A yellow pine tree 18 ins. dia. bears N. 52° 20′ W. 47 lks. Dist. marked Colo., 102 M., B.T.
This cor. stands on spur slope N.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, cedar and yellow pine, and oak brush.
Alt. 6790 ft.
Temp. 58°.

103rd mile

S. 89 57′ E. on the tangent to the parallel.
Descend.

	1.50	Dry gulch, course N.; ascend.
6790 ft.	7.00	Top of spur, slope N.; descend.
	55.00	Bottom of dry ravine, 200 ft. deep, course N.; ascend along steep N. slope.

Difference between measurements of 80 chs. by 2 sets of chainmen is 14 lks. position of middle point
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is
6750 ft. 80.00 N. 19 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at bottom 2 ft. in the ground for 103rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 103 M. stamped in the center. Raised a mound of stone 5 ft. base and 2 ft. high around the post.
Pits impracticable.

A yellow pine tree 24 ins. dia. bears N. 86° W. 84 lks. dist. marked Colo., 103 M., B.T.
No other trees within limits.
This cor. stands on steep N. slope in oak brush, dense.
Land, rough and broken.
Soil, sand and clay, 3rd rate.
Alt. 6750 ft.
Temp. 45°.

——104th mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascend along steep N. slope.

6780 ft.	31.30	Top of sharp spur slope N. Descend along N. slope.
	60.00	Bottom of dry ravine about 200 ft. deep, course NW.; ascend.
	63.00	Bottom of rocky ravine, course S.
	68.00	Top of spur slope N.
	78.60	Dry ravine near head, course N.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is
7100 ft.	80.00	N. 27 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 104th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 104 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable.
A spruce tree 10 ins. dia. bears N. 27° 20′ E. 118 lks. dist. marked Colo., 104 M., B.T.
A spruce tree 10 ins. dia. bears S. 21° E. 13 lks. dist. marked N.M., 104 M., B.T.
A spruce tree 24 ins. dia. bears S. 55° 40′ W. 30 lks. dist. marked N.M., 104 M., B.T.
A pinon tree 5 ins. dia. bears N. 42° W. 106 lks. dist. marked Colo. 104 M., B.T.

Land, rolling and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, sage and oak brush, cedar, pinon, yellow pine, and spruce timber.
Alt. 7100 ft.
Temp. 46°.

November 16th, 19[illegible]

I examine the adjustment of the transit and compare the steel tapes with the standard, find all correct and in adjustment.

——105th mile——

S. 89° 56′ E. on the tangent to the parallel.
Ascend.

7150 ft.	5.91	Top of high spur slope S. Stadia measurement, Angle 5° —, Rod 9.18 double=1836 ft.× 1822.05 ft. +C. 1.14 ft.=1823.19=27.62 chs. +5.91 chs =33.53 chs.
	18.00	Dry ravine about 150 ft. deep, course SW.; ascend.
	33.53	Stadia point. Tape measurement.
7200 ft.	35.00	Top of ridge bears N. and S. Altitude 7200 ft.; descend. Difference between measurements of 46.47 chs. by 2 sets of chainmen is 8 lks. position of middle point By 1st set 46.51 chs. By 2nd set 46.43 chs.; the mean of which is 46.47 chs.+33.35 chs.
	80.00	Falls in deep canon, 150 ft. below top of ridge, impracticable to establish the cor. at this point. Land, rough and broken. Soil, rocky, sand and clay. 3rd rate. Vegetation, oak brush, cedar and pinon, yellow pine and spruce timber.

——106th mile——

S. 89° 55′ E. on the tangent to the parallel.

Descend.

4.00 Bottom of ravine, course N.; ascend.

7400 ft. 24.00 N. 41 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 105th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 105.3 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable.
A yellow pine tree 10 ins. dia. bears N. 44 E. 76 lks. dist. marked Colo., 105.3 M., B.T.
A yellow pine tree 12 ins. dia. bears S. 20° E. 100 lks. dist. marked N.M., 105.3 M., B.T.
A yellow pine tree 24 ins. dia. bears S. 38 40' W. 89 lks. dist., marked N.M., 105.3 M., B.T.
A yellow pine tree 10 ins. dia. bears N. 5° W. 170 lks. dist. marked Colo., 105.3 M., B.T.
This cor stands on E. slope of high ridge, near top, bears N. and S.
Alt. 7400 ft.
Temp. 55°.
Descend.

38.00 Bottom of dry ravine 300 ft. deep, course N.; ascend.
Difference between measurements of 37.36 chs. by 2 sets of chainmen is 2 lks. position of middle point,
By 1st set 37.37 chs.;
By 2nd set 37.35 chs.; the mean of which is 37.36 chs.+24.00 chs.=

7400 ft. 61.36 On high ridge bears N. and S. A trap dyke about 1 ch. N.
Stadia measurement,
Angle 6°--, Rod 13.00 double=2600 ft.×.9891=2571.66 ft.+C.=1.14 ft.=1572.80 ft. =38.98 chs.+61.36 chs.=100.34 chs.—80.00 chs.=20.34 chs. on 107th mile.

80.00 Falls in rocky canon, 300 ft. deep, course SE. Impracticable to establish the cor. at this point.

Land, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, oak-brush, cedar and pinon, yellow pine and spruce timber.

107th mile

S. 89° 55′ E. on the tangent to the parallel.
Ascend along S. slope.

7290 ft.	20.34	Stadia point, thence by Tape measurement,
7290 ft.	27.00	N. 53 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 106th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 106.338 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post.
		Pits impracticable.
		A pinon tree 6 ins. dia. bears S. 16° E. 33 lks. dist. marked N.M., 106.338 M., B.T.
		A pinon tree 7 ins. dia. bears S. 86° 40′ W. 27 lks. dist. marked N.M., 106.338 M., B.T.
		A (X) cross on sandstone wall 6 ft. high bears N. 14° 20′ E. 27 lks. dist. marked Colo., 106.338 M., B.C.
		No other bearing objects within limits.
		Alt. 7290 ft.
		Temp. 52°.
		This cor. stands on rocky spur slope S. Top of rocky butte about 2 chs. NE.; descend.
		Difference between measurements of 36.55 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 36.56 chs.
		By 2nd set 36.54 chs.; the mean of which is 36.55 chs. + 27.00 chs. = 63.55 chs.
6810 ft.	63.55	On top of river bluff bears N. and S.; descend.
		Stadia measurement.
		Angle 18° —, Rod 7.12 double = 1424 ft. × .9045 = 1288.01 ft. + C. = 1.08 ft. = 1289.09 ft. =

19.53 chs., 63.55 chs., 83.08 chs., 80.00 chs.
3.08 chs. on 108th mile.

79.90 Foot of bluff about 400 ft. high, W. edge of Navajo River course N., 70 lks. wide.

80.00 Falls in river, impracticable to establish the cor. at this point.

Land, rough and broken.

Soil, rocky, sand and clay, 3rd rate.

Vegetation, oak brush, cedar, pinon, yellow pine and spruce timber.

November 17th, 1902.

I examine the adjustments of the transit and compare the steel tapes with the standard, and find all correct and in adjustment.

108th mile

S. 89° 54' E. on the tangent to the parallel.

0.60 E. bank of Navajo River bears S. and NE.
Enter aspen and willow brush.

6410 ft. 2.00 N. 62 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 107th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 107.025 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable.
An aspen tree 6 ins. dia. bears N. 50° 50' E. 47 lks. dist. marked Colo., 107.025 M., B.T.
A spruce tree 18 ins. dia. bears S. 27° 05' E. 232 lks. dist. marked N.M., 107.025 M., B.T.
An aspen tree 6 ins. dia. bears N. 73° 40' W. 43 lks. dist. marked Colo., 107.025 M., B.T.
No tree SW. within limits suitable for bearing tree.
A pine post 10 ins. square 2½ ft. above ground firmly set, marks somewhat indistinct, U.R. on N., 37 N. on E., and N.M. on S. bears S. 41° 05' W. 9.13 chs. dist. Supposed to be old SE. cor. Southern Ute Reservation. This is the first cor. or mark of any kind I

		have been able to find indicating the boundary line since leaving the 88th mile of our line, the 243rd mile cor. of the Darling line.
		Alt. 6410 ft.
		Temp. 30°.
	3.00	D. & R. G. W., R.R. tracks-bears N. and S.
	5.00	Foot of bluff bears N. and S.; leave river bottom, ascend steep.
6900 ft.	19.00	Top of bluff bears N. and S. Altitude 6900 ft.
	57.00	Dry bed or ravine course S.; ascend.
		Difference between measurements of 78 chs. by 2 sets of chainmen is 14 lks. position of middle point
		By 1st set 78.07 chs.
		By 2nd set 77.93 chs.; the mean of which is 78 chs. + 2.00 chs.
7110 ft.	80.00	N. 76 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 108th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 108 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A yellow pine tree 10 ins. dia. bears N. 41½ E. 107 lks. dist. marked Colo., 108 M., B.T.
		A yellow pine tree 26 ins. dia. bears S. 17 45′ E. 109 lks. dist. marked N.M., 108 M., B.T.
		A yellow pine tree 24 ins. dia. bears S. 72 45′ W. 229 lks. dist. marked N.M. 108 M., B.T.
		A yellow pine tree 24 ins. dia. bears N. 16 45′ W. 148 lks. dist. marked Colo., 108 M., B.T.
		Land, very rough and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce timber.
		Alt. 7110 ft.
		Temp. 48°.

109th mile

S. 89 53' E. on the tangent to the parallel. Ascend.

22.40 Top of spur slope NW. about 50 ft. above cor. Descend.

34.50 Bottom of dry ravine, course NW. about 50 ft. below cor. Ascend.

73.00 Top of ridge bears N. and S. about 600 ft. above last cor.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point

By 1st set 20.05 chs.

By 2nd set 79.95 chs.; the mean of which is

7710 ft. 80.00 N. 92 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 109th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 109 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 6 ins. dia. bears N. 3° E. 50 lks. dist. marked Colo., 109 M., B.T.

A pinon tree 12 ins. dia. bears S. 56° W. 58 lks. dist. marked N.M., 109 M., B.T.

No other trees within limits suitable for bearing trees.

Land, rough and broken.

Soil, rocky, sand and clay, 3rd rate.

Vegetation, oak brush, cedar, pinon, yellow pine and spruce timber.

Alt. 7710 ft.

Temp. 60°.

This cor. stands on steep rocky S. slope near head of gulch, course SE.

110th mile

S. 89 53' E. on the tangent to the parallel. Descend.

15.00 Bottom of deep dry ravine, course SW. about 300 ft. deep.

35.40 On sharp ridge, 300 ft. high, bears N. and S. Descend by Stadia measurement.
Angle 1 —, Rod 12.70 double =2540 ft. × .9997 =2539.24 ft. + C. 1.15 ft. =2540.39 ft.
38.49 chs. + 35.40 chs. =73.89 chs.

47.00 Deep rocky canon, course SW. about 300 ft. below last ridge.

73.89 Stadia point on sharp spur slope S. Thence by tape measurement,

7610 ft. 80.00 N. 110 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 110th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 110 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A spruce tree 16 ins. dia. bears N. 63½ E. 25 lks. dist. marked Colo., 110 M., B.T.
A yellow pine tree 14 ins. dia. bears S. 41 E. 34 lks. dist. marked N.M., 110 M., B.T.
A spruce tree 14 ins. dia. bears N. 16½ W. 49 lks. dist. marked Colo., 110 M., B.T.
No tree SW. within limits suitable for bearing tree.
Land, rough and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, oak brush, cedar, pinon, yellow pine and spruce timber.
Alt. 7610 ft.
Temp. 42°.

November 18th, 1902.

I examine the transit and find it in adjustment, compare the steel tapes with the standard and find them of correct length.

—111th mile—

S. 89° 52' E. on the tangent to the parallel.
Descend.

1.20 Bottom of dry ravine 50 ft. deep, course SW.; ascend steep.

53.00 Top of ridge bears N. and S. about 300 ft. above bottom of ravine; descend.

77.00 Dry gulch, course SE. about 50 ft. below top of ridge; ascend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is

7900 ft. 80.00 N. 129 lks. from the tangent, on spur, slope S.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 111th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., and N.M., on S. and 111 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A yellow pine 18 ins. dia. bears N. 35° 20′ E. 23 lks. dist. marked Colo., 111 M., B.T.

A cedar tree 10 ins. dia. bears S. 62° 20′ E. 52 lks. dist. marked N.M., 111 M., B.T.

A yellow pine tree 10 ins. dia. bears S. 51° 20′ W. 111 lks. dist. marked N.M., 111 M., B.T.

A yellow pine tree 14 ins. dia. bears N. 66° W. 88 lks. dist. marked Colo., 111 M., B.T.

Land, rough and broken.

Soil, rocky, sand and clay, 3rd rate.

Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce timber.

Alt. 7900 ft.

Temp. 50°.

——112th mile——

S. 89° 52′ E. on the tangent to the parallel. Descend.

35.00 Bottom of rocky canon about 400 ft. deep, course S.; ascend.

Difference between measurements of 57.37 chs. by 2 sets of chainmen is 4 lks. position of middle point

		By 1st set 57.39 chs.
		By 2nd set 57.35 chs.; the mean of which is
7900 ft.	57.37	On spur slope S.
		Stadia measurement,
		Angle 10° +, Rod 11.76 double=2352 ft.× .9698=2280.97 ft.+C.=1.13 ft.=2282.10 ft. =34.57 chs.+57.37 chs.=91.94 chs.—80.00 chs.=11.94 chs. on 113th mile.
	65.00	Bottom of canon, course SW.
	70.00	On spur slope N.
8090 ft.	80.00	Falls in edge of canon, course nearly W. impracticable to establish the cor. at this place.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce timber.
		113th mile
		S. 89° 51′ E. on the tangent to the parallel.
	11.94	Stadia point.
8400 ft.	16.00	N. 154 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 112th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 112.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable.
		A yellow pine tree 16 ins. dia. bears N. 46° E. 93 lks. dist. marked Colo., 112.2 M., B.T.
		A yellow pine tree 14 ins. dia. bears S. 77° 20′ W. 212 lks. dist. marked N.M., 112.2 M., B.T.
		A yellow pine tree 14 ins. dia. bears N. 20° W. 110 lks. dist. marked Colo., 112.2 M., B.T.
		No tree SE. within limits.
		Alt. 8400 ft.
		Temp. 54°.
	23.00	Ravine near head, drains SW.
8450 ft.	31.70	On W. bank of box canon, perpendicular walls about 300 ft. deep, course S., heads about 5 chs. N.

Stadia measurement,
Angle 3°—, Rod 5.60 single=560 ft.×.9973 =558.49 ft.+C.=1.15 ft.=559.64 ft.=8.48 chs.+31.70 chs.=40.18 chs.

36.00 Bottom of canon, course S.

40.18 On E. wall of canon, bears N. and S. same elevation as W. wall. Thence by tape measurement,

77.50 Dry ravine, course S.

Difference between measurements of 39.82 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 39.83 chs.
By 2nd set 39.81 chs.; the mean of which is 39.82 chs.+40.18 chs.=

8510 ft. 80.00 N. 172 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 113th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 113 M stamped in the center. Raised mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 16 ins. dia. bears N. 24° 10′ E. 117 lks. dist. marked Colo., 113 M., B.T.
A yellow pine tree 10 ins. dia. bears S. 65° 25′ E. 19 lks. dist. marked N.M., 113 M., B.T.
A yellow pine tree 8 ins. dia. bears S. 15½° W. 86 lks. dist., marked N.M., 113 M., B.T.
A yellow pine tree 18 ins. dia. bears N. 23° 45′ W. 98 lks. dist. marked Colo., 113 M., B.T.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce.
Alt. 8510 ft.
Temp. 46°.

November 19th, 1902

I examine the adjustments of the transit,

compare the steel tapes with the standard and find all correct, and in adjustment.

—— 114th mile——

S. 89° 50' E. on the tangent to the parallel.

10.63 The monument set by S. S. Gannett, 1897, for the inter-section of the 37th parallel with the 107th meridian W. from Greenwich bears N. 1.40 chs. from this tangent and the offset to the parallel at this point is 1.75 chs. N. places this monument 3.15 chs. S of the 37th parallel as determined by my line. This is a monument consisting of a porphyry stone 10 ins. square and 18 ins. high above ground marked,
On N.-SE. cor. S. Ute Res., On E., 107 DEG.
On S. N.M., On W.-107 DEG. W.L.
Some bearing trees marked with nails driven in them forming letters, and at the N. a witness monument, about 6 ft. base, 3½ ft. high. There are 3 blazed lines running through the timber W. from here for more than 5 miles, but after a careful search I failed to find any Darling corners along or near these lines.

12.00 Dry ravine, course S. about 30 ft. deep; ascend.
Archuleta Mountain bears N. and S.

42.00 Dry ravine, course SW.

65.00 Enter grove of aspen timber bears N. and S.
Difference between measurements of 80 chs. by 2 set of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

8950 ft. 80.00 N. 196 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 114th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 114 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around

the post. Pits impracticable.
An aspen tree 6 ins. dia. bears S. 57° 20′ E. 16 lks. dist. marked N.M., 114 M., B.T.
An aspen tree 12 ins. dia. bears S. 35° W. 64 lks. dist. marked N.M., 114 M., B.T.
A yellow pine tree 30 ins. dia. bears N. 59° W. 436 lks. dist. marked Colo., 114 M., B.T.
No tree NE. within limits suitable for bearing tree.
Land, mountainous.
Soil, rocky and sandy, 3 rd rate.
Vegetation, yellow pine, spruce and balsam fir, cedar, pinon and aspen; oak and aspen brush.
Alt. 8950 ft.
Temp. 50°.

——115th mile——

S. 89° 50′ E. on the tangent to the parallel.
Ascend,

9000 ft. 11.50 Brow of mountain bears N. and S. Slope W. Altitude 9000 ft. Ascend gradually across top of mountain.
Difference between measurements of 72 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 72.04 chs.
By 2nd set 71.96 chs.; the mean of which is

9050 ft. 72.00 On E. brow of Archuleta Mountain, bears N. and S.
As I find the 80 chs. point will be inaccessible I set the cor at this point,
N. 221 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 115th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 114.9 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A yellow pine tree 14 ins. dia. bears N. 80° E. 104 lks. dist. marked Colo., 114.9 M., B.T.

A spruce tree 10 ins. dia. bears S. 29° 40′ E. 43 lks. dist. marked N.M., 114.9 M., B.T.
A yellow pine 10 ins. dia. bears S, 15° 30′ W. 96 lks. dist. marked N.M./114.9 M., B.T.
A yellow pine tree 14 ins. dia. bears N. 35° W. 68 lks. dist. marked Colo., 114.9 M., B.T.
Alt. 9050 ft.
Temp. 45°.

77.42 Thence by stadia measurement; descend.
Angle 17°—, Rod 13.00 double=2600 ft.× .9145=2377.70 ft.+C.=1.10 ft.=2378.80 ft.= 36.04 chs.+77.42 chs.=113.46 chs.—80.00 chs. =33.46 chs. on 116th mile.

80.00 Falls on side of cliff wall, inaccessible.
Land, mountainous.
Soil, rocky and sandy, 3rd rate.
Vegetation, yellow pine, balsam fir, cedar and aspen and oak brush.

November 20th, 1902.

I examine the transit, compare the tapes and find all correct and in adjustment.

——116th mile——

S. 89° 49′ E. on the tangent to the parallel.
Descend over rough rocky, broken mountain side.

3.00 Foot of cliffs bears NW. and SE. about 450 ft. below cor.

33.46 Stadia point, thence by tape measurement,
Descend over spurs over SE. slope.
Difference between measurements of 46.54 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 46.57 chs.
By 2nd set 46.51 chs.; the mean of which is 46.54 chs.+33.[illegible] chs.=

8010 ft. 80.00 N. 247 lks. from the tangent,
Set an iron pipe 3 ins. dia 4 ft long with flanges at the bottom 2 ft. in the ground for 116th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M.

on S. and 116 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A yellow pine tree 48 ins. dia. bears N. 17° E. 128 lks. dist., marked Colo. 118 M., B.T.
A yellow pine tree 30 ins. dia. bears S. 66° 20' E. 146 lks. dist., marked N.M., 116 M., B.T.
A yellow pine tree 24 ins. dia. bears S. 61° W. 78 lks. dist., marked N.M., 116 M., B.T.
No tree NW. within limits suitable for a bearing tree.
Land, mountainous.
Soil, sand and clay, 3rd rate.
Vegetation, oak brush, scattering yellow pine and aspen.
Alt. 8010 ft.
Temp. 50°.

——117th mile——

S. 89° 48' E. on the tangent to the parallel.
Descend over spurs.

7050 ft.	66.00	Foot of mountain bears N. and S. Enter nearly level valley.
	70.20	Wire fence bears N. and S. Enter Gomez's and Archuleta's field.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is
7050 ft.	80.00	N. 275 lks. from the tangent.

Set temporary cor.
Adjusted under instructions dated Sept. 9th, 1903.
See page 423.
Land, mountainous and valley.
Soil, sand and clay loam, 2nd and 3rd rate.
Vegetation, oak brush, scattering yellow pine.
Alt. 7050 ft.
Temp. 40°.

November 21st, 1902.

November 23rd. I carefully adjust the transit in all its parts, compare the steel tapes with the standard and find them of correct length.

November 24th, at 3h 06m A. M. l.m.t. I observe Polaris at Western elongation and mark a point in the line so found on a plug driven in the ground N. of my station.

At 8h A. M. November 24th, 1902, I lay off the azimuth of Polaris 1° 31.1′ to the E. and mark a point in the true meridian thus determined, on a plug driven in the ground N. of my station.

The magnetic bearing of the meridian is N. 13° 53′ W. This gives the magnetic variation, 13° 53′ E.

I now lay off an angle of 90° from the meridian, from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

——118th mile——

East on the tangent to the parallel.

3.00 Road from Archuleta's store and grist mill to Edith bears N. and S.

6.00 Our astronomical station No. 3 bears S. 29.68 chs. dist.

The latitude of this station by astronomical observation on the nights of Oct. 5th, 6th and 7th, 1902, is determined to be 36° 59′ 40.88″ or 29.29 chs. South of the 37th parallel. Our line projected from the West is therefore 39 lks. N. of the true parallel, as determined by the astronomical observations.

This being inside the limit allowed by the Hon. Commissioner I erect temporary astronomical monument at this point and continue the line.

See page 424.

Thence across cultivated land.

9.91 Coyote Creek, 15 lks. wide, course S.

15.90 Narrow guage R. R. for hauling logs to the saw mill bears NW. and SE.

36.80 Road bears N. and S.

47.80 Leave cultivated field bears NE. and SW., wire fence,

New Mexico Lumber Co.'s saw mill in center of town of Edith bears S. about 6 chs. dist.

53.00 Small house on line.

54.70 Center of main street in Edith bears NE. and SW.

58.30 R. R. track to saw mill bears NE. and SW.

63.00 River bottom; enter willow brush bears NE. and SW.

75.30 Navajo River 75 lks. wide, clear water, about 2 ft. deep, swift current, course SE.

Difference between measurements of 74 chs. by 2 sets of chainmen is 4 lks. position of middle point.

By 1st set 74.02 chs.

By 2nd set 73.98 chs.; the mean of which is 74.00 chs. + 6.00 chs.=

7050 ft. 80.00 Falls in patch of willow in river bottom, subject to over flow, impracticable to establish the cor. at this point.

Land, nearly level, valley and river bottom.

Soil, sandy loam, 2nd rate.

Vegetation, grass, sage, willow and cottonwood brush.

——119th mile——

S. 89° 57' E. on the tangent to the parallel.

6.00 Leave river bottom bears NE. and SW.

6.80 Ditch flume, course of water SW.

7.00 Road bears NE. and SW.

7100 ft. 8.00 N. 1 link from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 118th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M.

on S. and 118.1 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A yellow pine tree 12 ins. dia. bears S. 61 E. 251 lks. dist. marked N.M., 118.1 M., B.T.
S. end of bridge across Navajo River bears N. 3° E. about 3 chs. dist.
S. end of ditch flume across the river bears N. 44° 20' E. about 5 chs. dist.
No other trees within limits.
This cor. stands on sharp point of bluff, slope N.
Alt. 7100 ft.
Temp. 30°.
Ascend along N. slope.

13.00 Point of spur slope NE. Descend; enter timber bears N. and S.

18.00 Dry ravine, course N.; ascend

65.00 Top of spur slope N. about 700 ft. above last cor.
Difference between measurements of 72 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 72.05 chs.
By 2nd set 71.95 chs.; the mean of which is 72.00 chs.+8.00 chs.=

7810 ft. 80.00 N. 3 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 119th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 119 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
This cor. stands on steep N. slope, in oak brush.
No tree within limits suitable for bearing trees.
Land, mountainous.
Soil, rocky, clay and sandy, 3rd rate.
Vegetation, grass, oak and aspen brush, yellow pine, spruce, fir, cedar and pinon.

Alt. 7810 ft.
Temp. 38°.

——120th mile——

S. 89° 59′ E. on the tangent to the parallel. Along steep N. slope, through oak, aspen and pine brush.

17.44 On sharp spur slope N., very steep.
Stadia measurement,
Angle 8° +, Rod 13.00 double=2600 ft.× .9806=2549.56 ft.+C.=1.14 ft.=2550.70 ft.= 38.64 chs.+17.44 chs.=56.08 chs.

39.00 Bottom of dry canon about 600 ft. deep, course NW.

40.00 Wagon road in canon bears NW. and SE.; ascend.

56.08 Stadia point on E. wall of canon, bears NW. and SE. about 600 ft. above bottom, thence by tape measurement.
Ascend gradually.
Difference between measurements of 23.92 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 23.93 chs.
By 2nd set 23.91 chs.; the mean of which is 23.92 chs.+56.08 chs.=

8300 ft. 80.00 N. 7 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 120th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 120 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A yellow pine tree 18 ins. dia. bears N. 40° E. 75 lks. dist. marked Colo., 120 M., B.T.
A yellow pine tree 6 ins. dia. bears S. 17° 40′ E. 70 lks. dist. marked N.M., 120 M., B.T.
A yellow pine tree 16 ins. dia. bears S. 55½° W. 91 lks. dist., marked N.M., 120 M., B.T.
A yellow pine tree 10 ins. dia. bears N. 35°

W. 55 lks. dist. marked Colo., 120 M., B.T.
Land, mountainous.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, grass, oak and aspen brush, yellow pine, spruce, fir, cedar and aspen timber.
Alt. 7810 ft.
Temp. 38°.

November 24th, 1902.

I examine the adjustment of the transit and compare the steel tapes with the standard, find all correct and in adjustment.

——121st mile——

S. 89° 58′ E. on the tangent to the parallel.

17.76 Top of spur slope NW. about 10 ft. above last station.
Stadia measurement,
Angle 1°,+, Rod 12.98 double=2596 ft.×.9997=2595.22 ft.+C.=1.15 ft.=2596.37 ft.=39.34 chs.+17.76 chs.=57.10 chs.

42.00 Bottom of dry canon about 400 ft. deep, course NW.

57.10 On spur slope S., thence by
Tape measurement,

69.00 Dry ravine, course S.

8400 ft. 75.00 Top of rocky spur slope S. As I find the 80 chs. point will fall in brush on rocky wall of canon, I place the 121st mile cor at this point.
N. 12 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 121st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 120.937 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A yellow pine tree 10 ins. dia. bears N. 65° E. 85 lks. dist. marked Colo., 120.937 M., B. T.

A yellow pine tree 18 ins. dia. bears S. 57 E. 118 lks. dist. marked N.M., 120.937 M., B.T.
A yellow pine tree 16 ins. dia. bears S. 53 W. 118 lks. dist. marked N.M., 120.937 M., B.T.
A yellow pine tree 18 ins. dia. bears N. 40 W. 51 lks. dist. marked Colo., 120.937 M., B.T.

80.00 Falls on rocky side of canon, impracticable to establish the cor. at this point.
Land, mountainous.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, oak and aspen brush, pine, spruce, and balsam fir timber.
Alt. 8400 ft.
Temp. 52°.

——122nd mile——

S. 89° 57' on the tangent to the parallel.

15.00 Bottom of dry canon, about 200 ft. deep, course SW.
Ascend.

52.00 Top of spur slope N.
Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is

8760 ft. 80.00 N. 19 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 122nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 122 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A yellow pine tree 35 ins. dia. bears N. 46° 20' E. 335 lks. dist. marked Colo., 122 M., B.T.
A yellow pine tree 26 ins. dia. bears S. 52°

W. 204 lks. dist. marked N.M., 122 M., B.T.
No other trees within limits suitable for bearing trees.
Land, mountainous.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, oak and aspen brush, pine, spruce and balsam fir timber.
Alt. 8760 ft.
Temp. 48°.

November 25th, 1902.

Having run the line through to the 4th Astronomical Station, near Ortiz, on our 167th mile and found the falling to be 13.50 chs. North of the 37th parallel as determined by astronomical observations on the nights of October 12th and 13th, 1902, this being 8.90 chs. outside of the limit of 3″ of arc allowed by the Hon. Commissioner in accordance with Special Instructions dated July 7th, 1902, I return to this point and apply a correction of 21 lks. per mile to the South amounting to 9.24 chs. for the 44 miles from the 122nd mile to the 166th mile corners, to bring the line inside of said limit.

——July 12th, 1903——

I examine and adjust the transit, test the stadia wires for correct measurement, compare the steel tapes with the standard and find all correct.

——123rd mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascending gradually along NW. slope, through scattering timber and brush.

8810 ft.	6.00	Top of high bluff, bears NW. and SE.; descend.
	8.31	Stadia measurement from this point,

A red peak at S. end of high range bears N. 41° 51′ E. about 15 miles dist.
Sharp peak on Conejos Range bears N. 77°

E. about 25 miles dist.
A sharp timbered conical peak bears S. 62 18′ E. about 8 miles dist.
By Stadia.
Angle 16′, Rod 13.00 double=2600 ft. × .9240 = 2402.40 ft. + C. 1.10 ft. = 2403.50 ft. = 36.41 chs. + 8.31 chs. = 44.72 chs.

8000 ft. 33.00 Foot of bluff about 800 ft. high, bears NW. and SE., thence over rolling brushy land.

44.72 Stadia point, thence by tape measurement. Difference between measurements of 43.59 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 43.62 chs.
By 2nd set 43.56 chs.; the mean of which is 43.59 chs. + 36.41 chs. =

7800 ft. 80.00 N. 27 lks.—Correction 21 lks. S.—N. 6 lks. from tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 123rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 123 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E., and W. of the cor, 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
An aspen tree 6 ins. dia. bears N. 44° 30′ E. 54 lks. dist. marked Colo., 123 M., B.T.
An aspen tree 14 ins. dia. bears S. 3° 10′ E. 53 lks. dist. marked N.M., 123 M., B.T.
An aspen tree 6 ins. dia. bears S. 51° W. 54 lks. dist. marked N.M., 123 M., B.T.
An aspen tree 6 ins. dia. bears N. 8° 40′ W. 78 lks. dist. marked Colo., 123 M., B.T.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, scattering pine and aspen timber; oak and aspen brush.
Alt. 7800 ft.
Temp. 82°.

124th mile

S. 89° 56′ E. on the tangent to the parallel. Over rolling hills and scattering timber and brush.

47.15 W. edge of little valley, bears N. and S.

50.20 Trail bears N. and S.

55.00 Leave valley and ascend; bears N and S.

65.00 Top of spur about 75 ft. high, slope N.; descend.

70.00 Enter little valley bears NW. and SE.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is

7650 ft. 80.00 N. 37 lks.—Correction 42 lks. S.=S. 5 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 124th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 124 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.

A yellow pine tree 12 ins. dia. bears N. 21½° E. 147 lks. dist. marked Colo., 124 M., B.T.

A yellow pine tree 12 ins. dia. bears S. 9° 35′ W. 403 lks. dist. marked N.M., 124 M., B.T.

A yellow pine tree 12 ins. dia. bears N. 51° 40′ W. 391 lks. dist. marked Colo., 124 M., B.T.

No tree SE. within limits suitable for bearing tree.

Land, rolling.

Soil, sand and clay, 3rd rate.

Vegetation, scattering pine timber; oak and aspen brush.

Much of the timber has been cut off.

Alt. 7650 ft.

Temp. 85°.

——125th mile——

S. 89° 55′ E. on the tangent to the parallel. Over rolling land.

5.00 Bottom of dry gulch, course N.

6.00 Trail bears N. and S. Foot of hill bears N. and S.

Leave small valley; ascend.

15.00 Top of spur about 50 ft. high, slope NW.; descend.

35.00 Foot of hill, enter small valley bears NW. and SW.

36.00 Grade of old logging railroad bears NW. and SW.

43.90 Dry gulch, course N.

48.56 Dry gulch, course NW.

63.00 Foot of hills, leave valley bears NW. and SE.; ascend.

70.00 Top of spur about 50 ft. above valley, slope S.; descend.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which is

7710 ft. 80.00 N. 49 lks.—Correction 63 lks. S.=S. 14 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 125th mile cor. A brass cap on top of the pipe has raised letters Colo. on N. N.M. on S. and 125 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.

A yellow pine tree 14 ins. dia. bears N. 52° 40′ E. 132 lks. dist. marked Colo., 125 M., B.T.

No other trees within limits.

Land, rolling.

Soil, sand and clay, 3rd rate.

Vegetation, scattering pine timber, oak and aspen brush; grass and sage.

Alt. 7710 ft.
Temp. 85°.

July 12th. 1903.

I examine the adjustments of the transit, compare the steel tapes with the standard, and find everything correct and in adjustment.

——126th mile——

S. 89° 55' E. on the tangent to the parallel. Ascending through brush and scattering timber.

22.00 Top of ridge 75 ft. high, bears SE. and NW.
29.00 In small valley bears NE. and SW.
36.00 Timber road bears SE. and NW.
42.00 Leave valley, ascend, bears SE. and NW.
53.00 On spur slope NW.; about 100 ft. high; descend.
75.00 In broad ravine, course N.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks. position of middle point
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is

8050 ft. 80.00 On SW. slope in dense brush, I advance this corner.
Land, rough and broken.
Soil, clay loam, 3rd rate.
Vegetation, oak and aspen brush, heavy pine timber has been cut off, now scattering.

——127th mile——

S. 89° 54' E. on the tangent to the parallel. Ascend in dense brush.

8200 ft. 3.00 Top of spur slope N.

N. 62 lks.—Correction 84 lks. S.—S. 22 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 126th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M.

on S. and 126.037 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A yellow pine tree 12 ins. dia. bears N. 19° 50' E. 93 lks. dist. marked Colo., 126.037 M., B.T.
A yellow pine tree 20 ins. dia. bears S. 62° E. 115 lks. dist. marked N.M., 126.037 M., B.T.
A yellow pine tree 10 ins. dia. bears S. 34° 10' W. 112 lks. dist. marked N.M., 126.037 M., B.T.
A spruce tree 6 ins. dia. bears N. 74° 10' W. 72 lks. dist. marked Colo., 126.037 M., B.T.
Alt. 8200 ft.
Temp. 62°.
Descend.

20.00 Dry gulch, course N.; ascend.

33.60 Top of spur 100 ft. high, slope NW.

8200 ft. 53.00 Bottom of dry ravine, course NW.; ascend in dense oak brush.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 16 lks. position of middle point
By 1st set 80.08 chs.
By 2nd set 79.92 chs.; the mean of which is
8500 ft. 80.00 N. 76 lks.—Correction 105 lks. S.=S. 29 lks. from the tangent.
Set an iron pipe 2 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 127th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 127 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine tree 24 ins. dia. bears N. 36° E. 370 lks. dist. marked Colo., 127 M., B.T.
No other trees within limits. This cor stands on a bench about 200 ft. above the bottom of the ravine.

Land, rough and broken.
Soil, clay loam, 3rd rate.
Vegetation, oak and aspen brush, scattering pine timber.
Alt. 8500 ft.
Temp. 60°.

——128th mile——

S. 89° 53′ E. on the tangent to the parallel.
Ascend steep SW. slope in dense oak brush.

28.29 On spur slope N.

51.00 Top of spur slope N. Enter timber, thence along N. slope.

8800 ft. 66.79 Top of bluff bears N. and S. about 300 ft. above last cor.
Descend.
Stadia measurement.
Angle 3°—, 12.98 double=2596 ft.×.9973=2588.99 ft.+C.=1.15 ft.=2590.14 ft.=39.24 chs.+66.79 chs.=106.03 chs.—80.00 chs.=26.03 chs. on 129th mile.

8300 ft. 80.00 Comes in ravine about 500 ft. below top of bluff, stream 3 lks. wide, course N. I advance this cor.
Land, mountainous.
Soil, rocky, 3rd rate.
Vegetation, pine and spruce timber; oak and aspen brush.

——129th mile——

S. 89° 53′ E. on the tangent to the parallel.
Ascend in dense timber and brush.

26.03 Stadia point, thence by tape measurement.

8900 ft. 32.00 N. 99 lks.—Correction 134 lks. S.=S. 35 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 128th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 128.4 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5

ft. base 2 ft. high around the post.
An aspen tree 7 ins. dia. bears N. 46½° E. 29 lks. dist. marked Colo., 128.4 M., B.T.
An aspen tree 6 ins. dia. bears S. 57° E. 97 lks. dist. marked N M., 128.4 M., B.T.
An aspen tree 7 ins. dia. bears N. 18° W. 124 lks. dist. marked Colo., 128.4 M., B.T.
No tree within limits SW., suitable for bearing tree.
Alt. 8900 ft.
Temp. 60°.
Thence along bench; swampy meadow drains N.

50.00 Foot of ridge bears NE. and SW. Leave bench; ascend.
Enter timber bears NE. and SW.

9100 ft. 55.50 Top of ridge bears NE. and SW., 200 ft. above cor.

58.00 Spur slope NE.; descend general course of draw, through spruce and aspen timber.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

8950 ft. 80.00 N. 110 lks.—Correction 147 lks. S.=S. 37 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 129th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 129 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
An aspen tree 12 ins. dia. bears N. 11° 20' E. 37 lks. dist. marked Colo., 129 M., B.T.
An aspen tree 8 ins. dia. bears S. 64½° E. 21 lks. dist. marked N.M., 129 M., B.T.
A spruce tree 12 ins. dia. bears S. 51½° W. 62 lks. dist. marked N.M., 129 M., B.T.
A spruce tree 18 ins. dia. bears N. 70° 45' W. 41 lks. dist. marked Colo., 129 M., B.T.

Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass: pine, spruce and aspen timber; oak and aspen brush.
Alt. 8950 ft.
Temp. 64 .

——130th mile——

S. 89 .52' E. on the tangent to the parallel.
Descending through timber and brush.

16.00 Dry ravine, course NE.
25.00 Spur slope NE.; descend.
35.00 Bottom of ravine, 100 ft. deep, course NE.: ascend.
49.00 Top of spur 150 ft. above bottom of ravine, slope NE.; descend.
60.00 Ravine, water in holes, course NE.; ascend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 20 lks., position of middle point
By 1st set 80.10 chs.
By 2nd set 79.90 chs.; the mean of which is
9000 ft. 80.00 N. 129 lks.—Correction 168 lks. S.—S. 39 lks. from the tangent.

Set an iron pipe 3 ins. diá. 4 ft. long with flanges at the bottom 2 ft. in the ground for 130th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 130 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

This cor. stands on Continental Divide, which bears N. 65° E. and S. 65° W. for about 30 chs. then about S. 30° W.

A yellow pine tree 24 ins. dia. bears N. 61½ E. 26 lks. dist. marked Colo., 130 M., B.T.
A spruce tree 16 ins. dia. bears S. 57½ E. 125 lks. dist. marked N.M., 130 M., B.T.
A yellow pine tree 12 ins. dia. bears S. 5° W. 137 lks. dist. marked N.M., 130 M., B.T.
A spruce tree 10 ins. dia. bears N. 49° W. 146 lks. dist. marked Colo., 130 M., B.T.

Land, mountainous, rough and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, grass; pine, spruce and aspen timber; dense oak, aspen, service berry and maple brush.
Alt. 9000 ft.
Temp. 64 .

July 13th. 1903.

I examine the transit both as to levels and collimation, and find it in adjustment, compare the steel tapes with the standard and find them of correct length.

131st mile.—

S. 89° 52′ E. on the tangent to the parallel.
Descending along SE. slope through timber and brush.

33.00 Leave timber and brush bears N. and S.

40.92 Wagon road, from Navajo River to Chama bears NW. and SE.

8850 ft. 54.78 Little Chama River, stream 4 lks. wide, course SE.; thence across little valley.

69.80 Leave valley, bears NE. and SW.; ascend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is

8900 ft. 80.00 N. 150 lks.—Correction 189 lks. S. = 39 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 131st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 131 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
An aspen tree 10 ins. dia. bears S. 34½ W. 215 lks. dist. marked N.M., 131 M., B.T.
No other trees within limits.

This corner stands at W. edge of dense oak brush.
Red Peak, Navajo Range, bears N. 28° 43' E. about 8 miles distant.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; pine, spruce and aspen timber; oak and aspen brush.
Alt. 8900 ft.
Temp. 50°.

——132nd mile——

S. 89° 51' E. on the tangent to the parallel.
Ascend; enter dense oak brush bears N. and S.

15.60 Top of spur slope SW.; thence along S. slope crossing gulches.

43.00 Top of spur slope S. about 200 ft. above last corner.
Descend in dense aspen brush.

9000 ft. 80.00 Comes in aspen thicket on steep E. slope.
I advance this cor.
Land, mountainous.
Soil, sandy loam, 3rd rate.
Vegetation, grass; scattering pine timber; dense oak and aspen brush.
Alt. 9000 ft.
Temp. 60°.

——133rd mile——

S. 89° 50' E. on the tangent to the parallel.
Descending in dense aspen brush.

10.00 Stream 6 lks. wide, course SW.; ascend.

12.00 On bench about 30 ft. above stream, bears NE. and SW.; leave aspen timber and brush bears NE. and SW.

9200 ft. 16.00 In little open flat.
Difference between measurements of 96.00 chs. by 2 sets of chainmen is 12 lks. position of middle point
By 1st set 96.06 chs.
By 2nd set 95.94 chs.; the mean of which is

96.00 chs. — 80.00 chs. = 16.00 chs. on 133rd mile.

N. 177 lks. — Correction 214 lks. S. — S. 37 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 132nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 132.2 B. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A spruce tree 18 ins. dia. bears S. 80° W. 173 lks. dist. marked N.M., 132.2 M., B.T.

An aspen tree 5 ins. dia. bears S. 47½° W. 182 lks. dist. marked N.M., 132.2 M., B.T.

An aspen tree 5 ins. dia. bears N. 48° W. 167 lks. dist. marked Colo., 132.2 M., B.T.

No tree within limits NE, suitable for bearing tree.

Alt. 9200 ft.

Temp. 50°

Ascend.

19.20 Top of ridge bears NE. and SW.; enter timber bears NE. and SW.

Descend.

33.50 Timber road bears NE. and SW.

37.00 Stream 6 lks. wide in ravine, about 30 ft. deep, course SW.

40.00 On bluff——bears NE. and SW.; ascend, enter timber bears NE. and SW.

70.00 Foot of hill bears NE. and SW. Enter timber bears NE. and SW.

Difference between measurements of 64.00 chs. by 2 sets of chainmen is 4 lks. position of middle point

By 1st set 64.02 chs.

By 2nd set 63.98 chs.; the mean of which is 64.00 chs. + 16.00 chs. =

9250 ft. 80.00 N. 196 lks.—Correction 231 lks. S. — S. 35 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for 133rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M., on S. and 133 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

This cor. stands on NW. slope in heavy timber.

A spruce tree 16 ins. dia. bears N. 43½° E. 81 lks. dist. marked Colo., 133 M., B.T.

A spruce tree 14 ins. dia. bears S. 26½° W. 70 lks. dist. marked N.M., 133 M., B.T.

A spruce tree 16 ins. dia. bears N. 80° W. 61 lks. dist. marked Colo., 133 M., B.T.

No tree SE. within limits suitable for bearing tree.

Land, mountainous.

Soil, clay loam, 3rd rate.

Vegetation, grass; pine, spruce and aspen timber; oak and aspen brush.

Alt. 9250 ft.

Temp. 65°.

134th mile

S. 89° 50′ E. on the tangent to the parallel. Ascend.

9400 ft.	16.00	Top of ridge bears NE. and SW. about 150 ft. above last corner, much dead and fallen timber. Descend along SE. and S. slopes in dense brush.
	52.00	Bottom of dry ravine, course S.; ascend.
	64.00	Top of bluff bears N. and S.
	66.00	On high spur slope S. As I find the 80.00 chs. point will come in deep canon, subject to snow slides, I place the corner at this point. Difference between measurements of 66.00 chs. by 2 sets of chainmen is 12 lks., position of middle point
		By 1st set 66.06 chs.
		By 2nd set 65.94 chs.; the mean of which is
9670 ft.	66.00	N. 216 lks.—Correction 251 lks. S.—S.35 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 134th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 133.825 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

An aspen tree 8 ins. dia. bears S. 28° E. 29 lks. dist. marked N.M., 133.825 M., B.T.

An aspen tree 6 ins. dia. bears S. 19° W. 15 lks. dist. marked N.M., 133.825 M., B.T.

No trees on other side within limits suitable for bearing trees.

Alt. 9810 ft.

Temp. 70°

68.00 On edge of high bluff, thence by stadia measurement,

Angle 16° —, Rod 1030 sloubble +2060 ft. +9240 =11303.44 ft. + C. —1.10 =11304.54 ft. =28. 85 chs. + 68.00 chs. = 96.85 chs. — 80.00 chs. 16.85 chs. on 135th mile.

91.10 ft. 80.00 Comes in deep ravine subject to snow slides. No corner set here.

Land, mountainous.

Soil, clay and sand, 3rd rate.

Vegetation, grass; pine and spruce timber, oak, aspen and willow brush.

135th mile

S. 89° 49' E. on the tangent to the parallel. Ascend in dense timber and brush.

93.00 ft. 16.85 Stadia point on spur slope S.; descend.

35.00 Bottom of canon, 150 ft. below top of spur: W. fork of Chama River, 10 lks. wide, course SW.; ascend along N. slope in timber and brush.

70.00 Top of spur about 400 ft. above stream, slope N.; descend.

Difference between measurements of 63.15 chs. by 2 sets of chainmen is 10 lks. position of middle point.

By 1st. set 63.20 chs.

By 2nd set 63.10 chs.; the mean of which is 63.15 chs. = 16.85 chs. =

9500 ft. 80.00 Comes in gulch, course NW. Stream 3 lks. wide.
Impracticable to establish the cor. at this point.
Land, mountainous, very rough and broken.
Soil, rocky, 3rd rate.
Vegetation, grass; spruce and pine timber; oak and aspen brush.

136th mile

S. 89° 49' E. on the tangent to the parallel.
Ascend in dense timber and brush.

9750 ft. 24.00 N. 255 lks. Correction 279 lks. S. = S. 24 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 135th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 135.3 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This corner stands in little opening on sharp spur, slope S. Trail about 1 ch. South.
A spruce tree 24 ins. dia. bears S. 55° 86 lks. dist. marked N.M., 135.3 M., B.T.
A spruce tree 16 ins. dia. bears S. 85° W. 86 lks. dist. marked N.M., 135.3 M., B.T.
A spruce tree 16 ins. dia. bears N. 15° W. 111 lks. dist. marked Colo., 135.3 M., B.T.
No tree within limits NE. suitable for bearing tree.
Alt. 9750 ft.
Temp. 70°.
Ascend in dense timber.

10000 ft. 56.90 Top of high divide between Chama River and West Fork, Bears N. and S. Elevation 10,000 ft.
(This range is called the Navajo Mountains.)

65.00 Leave timber bears N. and S.
78.50 Enter timber bears NE. and SW.
Difference between measurements by 2 sets of chainmen is 6 lks., position of middle point
By 1st set 56.03 chs.
By 2nd set 55.97 chs.; the mean of which is 56.00 chs.+24.00 chs.=
10000 ft. 80.00 N. 275 lks.—Correction 294 lks. S.—S. 19 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 136th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 136 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A spruce tree 14 ins. dia. bears N. 34° E. 29 lks. dist. marked Colo., 136 M., B.T.
A spruce tree 10 ins. dia. bears S. 65½° E. 26 lks. dist. marked N.M., 136 M., B.T.
A spruce tree 16 ins. dia. bears S. 41½° W. 36 lks. dist. marked N.M., 136 M., B.T.
A spruce tree 12 ins. dia. bears N. 30° W. 45 lks. dist. marked Colo., 136 M., B.T.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass; spruce, aspen and pine timber; spruce and aspen brush.
Alt. 10000 ft.
Temp. 75°.

July 14th, 1903.

Having carefully adjusted the transit in all its parts at the 136th mile corner, I observe Polaris at Western elongation, at 2h 46m A. M. l.m.t. Nov. 29th, 1902, and mark a point on the line so found on a plug driven in the ground N. of my station.
At 8h A. M. Nov. 29th, I lay off the azimuth of Polaris, 1° 31.1′ to the E. and mark a point in the true meridian thus determined

on a plug driven in the ground N. of my station.

The magnetic bearing of this meridian is N. 13° 50′ W.

This gives the magnetic variation 13° 50′ E.

I now lay off an angle of 90° from the meridian, from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used with the telescope reversed at each sight.

N. B.—These observations on Polaris for Meridians were taken and the tangent cut out through the timber and brush before the correction and subsequent adjustment of the line was made, hence the difference in date. See report.

July 15th, 1903, at 8h A. M. I examine the transit and compare the steel tapes with the standard, and find all correct.

137th mile.

East on the tangent to the parallel.

4.00 Top of bluff bears N. and S.; descend over benches in timber.

31.00 Bluff bears N. and S.; descend.

40.00 Head of gulch course NE.

75.00 Hollow drains N.; ascend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

9500 ft. 80.00 N. .76 of a lk.—Correction 315 lks. S.—S. 314.24 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 137th mile cor. A brass cap on top of the pipe has raised letters Colo. on N. N.M., on S. and 137 M. stamped in the center. Raised

a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
An aspen tree 10 ins. dia. bears N. 55½° E. 72 lks. dist. marked Colo., 137 M., B.T.
An aspen tree 9 ins. dia. bears S. 87½° E. 154 lks. dist. marked N.M., 137 M., B.T.
An aspen tree 12 ins. dia. bears S. 39½° W. 90 lks. dist. marked N.M., 137 M., B.T.
A spruce tree 10 ins. dia. bears N. 32° W. 151 lks. dist. marked Colo., 137 M., B.T.
This cor. stands in little opening on flat spur slope N.
Land, mountainous.
Soil, sandy loam, 3rd rate.
Vegetation, grass; spruce, pine and aspen timber; spruce and aspen brush.
Alt. 9500 ft.
Temp. 75°.

——138th mile——

S. 89° 59' E. on the tangent to the parallel.
Descend over timber and brush.
9275 ft. 67.35 On River Bluff bears NW. and SE.
Descend very steep E. slope in dense aspen and willow brush.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 18 lks. position of middle point.
By 1st set 80.09 chs.
By 2nd set 79.91 chs.; the mean of which is
8850 ft. 80.00 N. 3 lks.—Correction 336 lks. S.=S. 333 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 138th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M., on S. and 138 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the cor.
Pits impracticable.
This cor. stands on a little spur slope SE. about 75 ft. above river bottom.

An aspen tree 5 ins. dia bears N. 32½ E. 53 lks. dist. marked Colo., 138 M., B.T.
An aspen tree 5 ins. dia. bears N. 56½ E. 73 lks. dist. marked N.M., 138 M., B.T.
An aspen tree 5 ins. dia. bears S. 60 W. 18 lks. dist. marked N.M., 138 M., B.T.
An aspen tree 5 ins. dia. bears N. 7 W. 32 lks. dist. marked Colo., 138 M., B.T.
Land, mountainous, rough and broken.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; spruce and pine timber; oak, willow and aspen brush.
Alt. 8850 ft.
Temp. 75°.

——139th mile——

S. 89° 59' E. on the tangent to the parallel.
Descend.

4.00 Foot of bluff about 500 ft. high, bears NW. and SE.; thence across river bottom.

8750 ft. 13.00 Chama River, 75 lks. wide, clear water, 2 ft. deep, course SE.
Altitude 8750 ft.; ascend.

17.00 Top of low bluff, about 50 ft. above water, bears NW. and SE. thence along S. slope.

55.00 On high spur slope S. about 250 ft. above last cor.; descend.

70.00 Bottom of broad ravine, stream 10 lks. wide, course S. about 200 ft. below top of spur.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point.
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is

8900 ft. 80.00 This point comes on S. slope in dense brush.
I advance this cor.
Land, mountainous.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass, sage; scattering pine and aspen timber; dense oak and aspen brush.

——140th mile——

S. 89° 58' E. on the tangent to the parallel.

Ascend in dense oak brush.

5.00 Top of spur slope S.; descend.

10.00 Stream 3 lks. wide, course SW.

9500 ft. 39.77 On sharp spur slope SW.

Difference between measurements of 39.77 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 39.83 chs.

By 2nd set 39.71 chs.; the mean of which is 39.77 chs.

N. 9 lks.—Correction 367 lks. S.—S. 358 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 139th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 139.497 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

An aspen tree 6 ins. dia. bears N. 26° E. 59 lks. dist. marked Colo., 139.497 M., B.T.

An aspen tree 6 ins. dia. bears N. 21½° W. 77 lks. dist. marked Colo., 139.497 M., B.T.

No tree on S. side suitable for bearing trees.

S. face of rock cliff bears S. 77½° E.

First sharp peak on range bears N. 68½° W.

Alt. 9500 ft.

Temp. 75°.

Descend.

42.00 Bottom of ravine 50 ft. deep, stream 2 lks. wide, course SW.; ascend.

54.00 Top of spur slope SW.; descend.

62.00 Bottom of ravine 50 ft. deep, stream 5 lks. wide, course SW.; ascend steep rocky W. slope.

Difference between measurements of 40.23 chs. by 2 sets of chainmen is 10 lks., position of middle point

By 1st set 40.28 chs.

By 2nd set 40.18 chs.; the mean of which is 40.23 chs.+39.77 chs.

9900 ft. 80.00 N. 12 lks.—Correction 378 lks. S.=S. 366 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 140th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 140 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
An aspen tree 6 ins. dia. bears N. 68° E. 51 lks. dist. marked Colo., 140 M., B.T.
An aspen tree 5 ins. dia. bears S. 32° E. 53 lks. dist. marked N.M., 140 M., B.T.
An aspen tree 5 ins. dia. bears S. 35° W. 31 lks. dist. marked N.M., 140 M., B.T.
An aspen tree 5 ins. dia. bears N. 37½° W. 73 lks. dist. marked Colo., 140 M., B.T.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; scattering spruce and aspen timber; dense aspen brush.
Alt. 9900 ft.
Temp. 70°.

——141st mile——

S. 89° 57' E. on the tangent to the parallel.
Ascend in aspen timber and brush.
5.00 Top of high spur slope S.; thence descend gradually along S. slope.
Thence by stadia measurement,
Angle 5°+, Rod 10.00 double=2000 ft.× .9924=1984.80 ft.+C.=1.14 ft.=1985.94 ft.=30.09 chs.+5.00 chs.=35.09 chs.
15.00 Small lake about 3 chs. wide extends about 2 chs. N. and 5 chs. S.
25.00 Foot of hill bears NW. and SE.; ascend.
10000 ft. 34.00 Top of spur slope S. Altitude 10000 ft.; descend.
35.09 Stadia point, thence by tape measurement.
55.23 Post by R.R. track near switch at Cresco, marked C. on N., 191 M. on E. and N.M. on S., supposed to be Darling's 191st mile cor.,

restored by Mr. F. M. Johnson in 1900 or 1901, bears S. 40.93 chs. dist. West of this point I failed to find any of the Darling corners I could identify, since leaving his 243rd mile, west of the San Juan River.

Descend along steep S. slope.

9700 ft. 80.00 Comes in bottom of ravine, stream 2 lks. wide, course S. (The stream that supplies the R.R. tanks at Cresco switch about 30 chs. South). Impracticable to establish the corner at this point.

Land, mountainous, rough and broken.

Soil, rocky; clay loam, 3rd rate.

Vegetation, grass; spruce and aspen timber; oak and aspen brush.

142nd mile

S. 89° 57' E. on the tangent to the parallel. Ascend over broken S. slope.

Difference between measurements of 62.31 chs. by 2 sets of chainmen is 14 lks., position of middle point

By 1st set 62.38 chs.

By 2nd set 62.24 chs.; the mean of which is 62.31 chs. + 30.09 chs. = 92.40 chs. — 80.00 chs. = 12.40 chs. on 142nd mile.

9700 ft. 12.40 N. 20 lks.—Correction 402 lks. S.=S. 382 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 141st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 141.155 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A spruce tree 16 ins. dia. bears N. 52° E. 215 lks. dist. marked Colo., 141.155 M., B.T.

A spruce tree 24 ins. dia. bears S. 17½° W. 120 lks. dist. marked N.M., 141.155 M., B.T.

No other trees within limits suitable for bearing trees.

This cor. stands on sharp ridge slope S. about ½ mile North-easterly from the D. & R. G. R.R. tank at Cresco.
Alt. 9700 ft.
Temp. 70°.

July 15th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.
Thence along S. slope through timber and brush, crossing gulches and ridges.

50.00 On spur slope S. about 100 ft. above last cor.

62.70 On high bluff bears N. and S. Offset 4.57 chs. N. to avoid Wolf Creek Canon, thence S. 89° 57' E. parallel to tangent and 4.57 chs. N. of it on offset line.

78.30 and Wagon road, Cumbres to Chama, bears NE. and SW.

Difference between measurements of 67.60 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 67.63 chs.
By 2nd set 67.57 chs.; the mean of which is 67.60 chs.—12.40 chs.

9710 ft. 80.00 Comes in D. & R. G. R.R. cut N. of track.
This offset line is 4.57 chs. N. of the tangent, true place for this cor. N. 27 lks.—Correction 420 lks. S. —S. 393 lks from the tangent —457 lks.—850 lks. N. of the true place for this corner which falls in Wolf Creek Canon and is inaccessible. Therefore I establish a witness corner at this point 850 lks. N. of the true place for the corner.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for witness cor. for 142nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and W.C., 142 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable, in R.R. cut.

An aspen tree 5 ins. dia. bears N. 20° 40′ E. 33 lks. dist. marked Colo., W.C., 142 M., B.T.
An aspen tree 6 ins. dia. bears S. 86° 50′ E. 102 lks. dist. marked W.C., N.M., 142 M., B. T.
A cross on black volcanic rock bears S. 37° 20′ E. 39 lks. dist. Rock 4x6x10 ft. above ground marked N.M., W.C. 142 M., B.C.
An aspen tree 5 ins. dia. bears N. 73° 40′ W. 110 lks. dist. marked W.C., Colo., 142 M., B. T.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass; spruce, pine and aspen timber; oak and aspen brush.
Alt. 9710 ft.
Temp. 60°.

143rd mile

S. 89° 56′ E. on offset line parallel with the tangent.

0.35 D. & R. G. R.R. track bears NE. and SW.

1.00 Stadia measurement.
Angle 2°+, Rod 9.20 single=920 ft.×.9988=918.90 ft.+C.=1.15 ft.=920.05 ft.=13.94 chs. +1.00 ch.=14.94 chs.

8.00 Bottom of Wolf Creek Canon, about 250 ft. deep, stream 10 lks. wide, course SW.; ascend.

14.94 Stadia point, thence by tape measurement.

25.00 Set back S. 4.57 chs. to the tangent line, thence S. 89° 56′ E. on the tangent to the parallel.
Leave timber, bears NW. and SE.

33.90 Spur slope N.

54.00 Enter timber bears NE. and SW.

75.00 Leave timber bears NE. and SW. Foot of Cumbres or Conejos Range bears NE. and SW.; ascend.
Difference between measurements of 65.06 chs. by 2 sets of chainmen is 8 lks. position of middle point

By 1st set 65.10 chs.
By 2nd set 65.02 chs.; the mean of which is 65.06 chs. + 14.94 chs.

850 ft. 80.00 N. 37 lks. Correction 441 lks. S. = S. 404 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 143rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 143 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A spruce tree 7 ins. dia. bears S. 32° 15′ E. 46 lks. dist. marked N.M., 143 M., B.T.
A spruce tree 7 ins. dia. bears S. 86° 15′ W. 78 lks. dist. marked N.M., 143 M., B.T.
No other trees within limits suitable for bearing trees.
A point of black lava rock bears N. 79° E. about 12 chs. dist.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; spruce and aspen timber; aspen, alder and willow brush.
Alt. 9850 ft.
Temp. 66°.

144th mile

S. 89° 55′ E. on the tangent to the parallel.
Ascend steep rocky W. slope of mountain.
Stadia measurement.
Angle 20′ +, Rod 12.80 single = 1280 ft. + 8830 = 1130.24 ft. + C. = 1.08 ft. = 1131.32 ft. = 17.14 chs.

17.14 Stadia point, thence by tape measurement, over rolling rocky hills.

500 ft. 50.00 Summit of Conejos Range, bears N. and S.
Alt. 10500 ft.
Cumbres station on D. & R. G. R.R. at Cumbres Pass about 1½ miles N.
Descend through scattering timber, with much dead and fallen timber.

Difference between measurements of 62.86 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 62.89 chs.
By 2nd set 62.83 chs.; the mean of which is 62.86 chs. = 17.14 chs.
N. 49 lks.—Correction 462 lks. S. = S. 413 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 144th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 144 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
No trees within limits. This cor. stands on a little flat or basin.
Land, mountainous.
Soil, sand and clay, 3rd rate.
Vegetation, grass; spruce and aspen timber; much dead and fallen timber.
Alt. 10300 ft.
Temp. 70°.

——145th mile——

S. 89° 55' E. on the tangent to the parallel. Descending gradually.

4.00 Stream 5 lks. wide, course NE.; ascend.
8.00 Enter timber bears NW. and SE.
25.00 Top of spur slope N. 150 ft. above cor.; descend.
46.00 Bottom of ravine 100 ft. deep, course NW.; ascend.
60.00 Top of spur slope N.; descend.
77.00 Stream 6 lks. wide, course NE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is
10000 ft. 80.00 N. 62 lks.—Correction 483 lks. S.—421 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 145 mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 145 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A spruce tree 16 ins. dia. bears N. 85 E. 152 lks. dist. marked Colo., 145 M., B.T.

A spruce tree 12 ins. dia. bears S. 58° 45' E. 37 lks. dist. marked N.M., 145 M., B.T.

A spruce tree 10 ins. dia. bears S. 61¼ W. 236 lks. dist. marked N.M., 145 M., B.T.

A spruce tree 10 ins. dia. bears N. 36¼ W. 96 lks. dist. marked Colo., 145 M., B.T.

This cor. stands on E. bank of creek about 30 ft. above the water.

Land, mountainous.

Soil, sand and clay, 3rd rate.

Vegetation, grass, sage; spruce and aspen timber; and brush.

Alt. 10000 ft.

Temp. 70°.

——146th mile——

S. 89° 54' E. on the tangent to the parallel. Ascend in spruce timber.

25.00 Top of spur about 150 ft. high slope N.

38.00 Bottom of gulch, course N.; ascend.

50.00 Top of spur 100 ft. high slope N.; descend.

65.00 Leave timber bears N. and S.; descend E. slope.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which is

9700 ft. 80.00 N. 76 lks.—Correction 504 lks. S.—S. 428 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 146th mile cor. A brass cap on top of the

pipe has raised letters Colo. on N., N.M. on S. and 146 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
No trees within limits.
This cor. stands in a little hollow.
Land, mountainous.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass, sage, scattering spruce and aspen timber with some dead and fallen timber.
Alt. 9700 ft.
Temp. 65°.

July 16th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct, and in adjustment.

147th mile

S. 89° 53' E. on the tangent to the parallel. Descending gradually across little valley.

8.00 Stream 5 lks. wide, course NE.; ascend.

9750 ft. 16.00 Top of rocky spur slope N. in scattering timber.
Descend along N. slope.

50.00 Foot of hills. Enter valley of the Pinos, bears NW. and SE. Leave timber bears NW. and SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is

9450 ft. 80.00 N. 92 lks. Correction 525 lks. S. S. 433 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 147th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 147 M. stamped in the center. Dug

pits 36x36x18 ins. N., S., and E. of the cor. 6 ft. dist. The place for pit on W. side, a shallow pond, pit impracticable. Raised a mound of earth 5 ft. base 2 ft. high around the post.

A cliff of rock bears N. 25° E. about 1 mile dist.

A sharp point of rock bears N. 51° 05' E. about 1 mile dist.

This cor. stands on creek bottom about 6 chs. S. of Rio Los Pinos

Land, mountainous.

Soil, sandy, and clay loam, 2nd rate.

Vegetation, grass, sage, scattering spruce and aspen

Alt. 9450 ft

Temp. 68°

148th mile

S. 89° 53' E. on the tangent to the parallel. Along creek bottom.

	60.00	Stream 5 lks. wide, course NE.
	70.00	Foot of bluff bears NE. and SW.; ascend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs.; the mean of which is
9500 ft.	80.00	N. 110 lks.—Correction 546 lks. S.—S. 436 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 148th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 148 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		No trees within limits.
		This cor. stands on steep rocky NW. slope.
		Land, mostly valley.
		Soil, sandy and rocky, 2nd rate.

Vegetation, grass and sage.
Alt. 9500 ft.
Temp. 70°.

149th mile

S. 89° 52' E. on the tangent to the parallel. Ascend over steep broken rock.
Stadia measurement.
Angle 18° +, Rod 11.50 single = 1150 ft. × .9045 = 1040.18 ft. + C. = 1.09 ft. = 1041.27 ft. = 15.77 chs.

15.77 Stadia point on top of rock cliffs, about 350 ft. above creek bears NE. and SW. Thence by tape measurement along N. slope. Enter scattering timber bears NE. and SW

68.00 Top of spur, slope N.
Difference between measurements of 64.23 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 64.25 chs.
By 2nd set 64.21 chs.; the mean of which is 64.23 chs. + 15.77 chs.

9840 ft. 80.00 N. 129 lks. Correction 567 lks. S. 8. 438 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 149th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 149 M. stamped in the center. Raised a mound of stone 3 ft. base 2 ft. high around the post.
Pits impracticable.
An aspen tree 6 ins. dia. bears N. 72½° E. 116 lks. dist. marked Colo., 149 M., B.T.
An aspen tree 10 ins. dia. bears S. 14° E. 79 lks. dist. marked N.M., 149 M., B.T.
An aspen tree 5 ins. dia. bears S. 62° W. 80 lks. dist. marked N.M., 149 M., B.T.
An aspen tree 5 ins. dia. bears N. 51¼° W. 24 lks. dist. marked Colo., 149 M., B.T.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate

Vegetation, grass, sage, aspen and scatter
ing spruce timber; aspen brush.
Alt. 9810 ft.
Temp. 70

150th mile

S. 89 52' E. on the tangent to the paralle.
Ascend gradually in aspen timber.

3.50 Top of hill bears NW. and SE.; descend.
30.00 Leave timber bears NW. and SE.
55.00 On bluff bears NW. and SE.; descend.
9200 ft. 64.00 Rio Los Pinos, 60 lks. wide, course SE. Alt 9200 ft.
Ascend along S. slope.
75.00 Brook 3 lks. wide, course SW.; ascend steep
80.00 Comes on very steep W. slope in sliding rock.
Impracticable to establish permanent cor. at this point.
Land, mountainous.
Soil, rocky, 3rd rate.
Vegetation, grass, sage, scattering aspen timber; aspen brush.

151st mile

S. 89 51' E. on the tangent to the parallel.
5.70 D. & R. G. R.R. track bears N. and SE.
6.00 Perpendicular wall rock cutting about 30 ft. high.
Difference betwee measurements of 87.00 chs. by 2 sets of chainmen is 16 lks. position of middle point
By 1st set 87.08 chs.
By 2nd set 86.92 chs.; the mean of which is 87.00 chs. — 70.00 chs. = 7.00 chs. on 151st mile.
9520 ft. 7.00 N. 152 lks. Correction 590 lks. S. = S. 438 lks. from the tangent,
Set an iron post 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 150th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on

		S. and 150.087 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A spruce tree 10 ins. dia. bears S. 11½ E. 83 lks. dist. marked 150.087 M., N. M., B.T.
		A spruce tree 18 ins. dia. bears N. 32° W. 55 lks. dist. marked Colo. 150.087 M., B.T.
		No other trees within limits suitable for bearing trees.
		The upper end of Toltec Gorge about 1 mile SE.
		Darling's 6th Astronomical station bears S. 1 W. 38.80 chs. dist. I destroyed this cor. and succeeded in finding and destroying all his corners from this point W. to the 191st mile cor. previously mentioned, except his 182nd, 189th and 190th mile corners, which I failed to find.
		Thence ascend through dense aspen brush.
10000 ft.	70.00	On top of high spur slope S. Alt. 10000 ft. descend.
		Difference between measurements of 73.00 chs. by 2 sets of chainmen is 12 lks., position of middle point
		By 1st set 73.06 chs.
		By 2nd set 72.94 chs.; the mean of which is 73.00 chs. + 7.00 chs.
9950 ft.	80.00	N. 172 lks.—Correction 609 lks. S.—S. 437 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 151st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 151 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		An aspen tree 8 ins. dia. bears S. 11° E. 200 lks. dist. marked N.M., 151 M., B.T.
		An aspen tree 10 ins. dia. bears S. 15° W. 290 lks. dist. marked N.M., 151 M., B.T.
		No trees within limits on other side.

Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; aspen, scattering spruce timber; dense aspen brush.
Alt. 9950 ft.
Temp. 70°.

July 17th, 1903.

On morning of Dec. 3rd, 1902, at 2h 31m A. M. l.m.t., having carefully adjusted the transit in all its parts at the 151st mile cor. I observe Polaris at Western elongation, and mark a point on the line so found on a plug driven in the ground N. of my station.
At 7h 50m A. M. Dec. 3rd, I lay off the azimuth of Polaris 1° 31.1′ to the East and mark a point in the true meridian on a plug driven in the ground N. of my station.
The magnetic bearing of said meridian is N. 13° 45′ W.
This gives the magnetic variation 13° 45′ E.
I now lay off an angle 90° from the meridian, from the N. to the E. for the tangent to the parallel.
In these observations and the subsequent turning of angles the mean of four sights was used with telescope reversed at each sight.

July 18th, 1903.—I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.

——152nd mile——

East on the tangent to the parallel.
Descend through dense aspen brush.
71.00 D. & R. G. R.R. bears N. and S.; about 10 chs. N. to Toltec section house.
9350 ft. 80.00 Comes in dense brush in deep ravine, about 600 ft. below last corner. I advance this corner.
Land, mountainous.

Soil, rocky, clay and sand, 3rd rate.
Vegetation, grass; aspen timber; aspen and oak brush.

153rd mile

S. 89 59′ E. on the tangent to the parallel.
Descend in dense brush.

1.00 Stream 5 lks. wide, course SE.; ascend.
Difference between measurements of 96.00 chs. by 2 sets of chainmen is 20 lks., position of middle point
By 1st set 96.10 chs.
By 2nd set 95.90 chs.; the mean of which is 96.00 chs.—80.00 chs.=16 chs. on 153rd mile.

9450 ft. 16.00 N. 1 lk.—Correction 634 lks. S.=S. 633 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 152nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N. N.M., on S. and 152.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This. cor. stands in S. side of D. & R. G. R.R cut.
A spruce 5 ins. dia. bears N. 43 50′ W. 160 lks. dist. marked Colo., 152 M., B.T.
No other trees within limits suitable for bearing trees.

16.25 Center of D. & R. G. R.R. track bears NW. and SE.; ascend in dense brush and scattering timber.

10000 ft. 36.00 Top of high bluff bears NW. and SE. Elevation 10000 ft.
Enter aspen timber; descend gradually.
Difference between measuremgnts of 64.00 chs. by 2 sets of chainmen is 14 lks., position of middle point
By 1st set 64.07 chs.
By 2nd set 63.93 chs.; the mean of which is 64.00 chs.+16.00 chs.=

9920 ft. 80.00 N. 3 lks.—Correction 631 lks. S.—S. 648 lks. from the tangent.
Set an iron pipe 3 ins. dia, 4 ft. long with flanges at the bottom 2 ft. in the ground for 153rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 153 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
An aspen tree 6 ins. dia. bears 34½ E. 48 lks. dist. marked Colo., 153 M., B.T.
An aspen tree 6 ins. dia. bears S. 72 E. 68 lks. dist. marked N.M., 153 M., B.T.
An aspen tree 6 ins. dia. bears S. 24 W. 180 lks. dist. marked N.M., 153 M., B.T.
An aspen tree 5 ins. dia. bears N. 73 W. 95 lks. dist. marked Colo., 153 M., B.T.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass; aspen, scattering spruce timber; aspen brush.
Alt. 9920 ft.
Temp. 79°

——154th mile——

S. 89° 59' E. on the tangent to the parallel.
Descending gradually through aspen timber.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is
9850 ft. 80.00 N. 7 lks.—Correction 672 lks. S.—S. 665 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 154th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 154 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.
This cor. stands among dead aspen poles, on gentle NW. slope.
An aspen tree 6 ins. dia. bears North 15 lks. dist. marked Colo., 154 M., B.T.
An aspen tree 6 ins. dia. bears S. 54° 20′ W. 153 lks. dist. marked N.M., 154 M., B.T.
No other tree within limit suitable for bearing tree.
Land, sloping gently to the N. and NW.
Soil, clay loam, 3rd rate.
Vegetation, aspen timber and brush.
Alt. 9850 ft.
Temp. 75

—155th mile—

S. 89° 58′ E. on the tangent to the parallel.
Descending along N. slope in timber and brush.

73.00 Bottom of ravine, course N.

77.00 On ridge bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

9650 ft. 80.00 N. 12 lks.—Correction 693 lks. S.—S. 681 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 155th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 155 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable.
A yellow pine tree 24 ins. dia. bears N. 15° E. 161 lks. dist. marked Colo., 155 M., B.T.
A spruce tree 24 ins. dia. bears S. 23½° W. 291 lks. dist. marked N.M., 155 M., B.T.
No other trees within limit suitable for bearing trees.

Land, mountainous.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, grass; aspen, scattering pine and spruce timber; aspen brush.
Alt. 9650 ft.
Temp. 75 .

——156th mile——

S. 89° 57′ E. on the tangent to the parallel.
Descend over rolling hills, along N. slope through timber and brush.

9540 ft. 74.00 Top of ridge bears NE. and SW.; descend, leave timber, bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is

9440 ft. 80.00 N. 19 lks.—Correction 714 lks. S.=S. 695 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 156th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 156 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This cor. stands on open NE. slope near head of little gulch that runs SE.
A yellow pine tree 18 ins. dia. bears N. 64° 35′ E. 167 lks. dist. marked Colo., 156 M., B.T.
A yellow pine tree 18 ins. dia bears S. 35° E. 312 lks. dist. marked N.M., 156 M., B.T.
No other trees within limits.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass; spruce and pine and aspen timber; oak and aspen brush.
Alt. 9440 ft.
Temp. 77 .

I examine, and carefully adjust the transit, compare the steel tapes with the standard and find them of correct length.

157th mile

S. 89° 57' E. on the tangent to the parallel. Descend.

8.00 Bottom of ravine about 75 ft. below cor. course NE.; ascend over N. slopes.

40.00 Top of spur, slope N. about 50 ft. high.

9760 ft. 72.00 Bottom of ravine, stream 2 lks. wide, course N.; ascend.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is

9210 ft. 80.00 N. 27 lks.—Correction 735 lks. S.—S. 708 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 157th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 157 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

This cor. stands in a little gap or saddle, on the top of a ridge that bears NE. and SW.

A pine tree 18 ins. dia. bears N. 44½° E. 74 lks. dist. marked Coyo., 157 M., B.T.

A pine tree 12 ins. dia. bears S. 10½° E. 173 lks. dist. marked N.M., 157 M., B.T.

No other trees within limits.

Land, mountainous.

Soil, rocky, 3rd rate.

Vegetation, grass; pine, spruce and aspen timber; oak and aspen brush.

Alt. 9210 ft.

Temp. 65°.

——158th mile——

S. 89° 56' E. on the tangent to the parallel. Descending through brush and scattering timber.

23.00 Bottom of dry ravine, 50 ft. deep course NE.; ascend.

30.00 Top of spur slope NE.; descend.

34.00 Bottom of ravine 50 ft. deep, course NE.

50.00 Top of spur, about 50 ft. above gulch, slope NE.

72.00 Bottom of ravine, course N., water in head of it about ½ mile S. of line; ascend.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which

9130 ft. 80.00 N. 37 lks.—Correction 756 lks. S.=S. 719 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 158th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 158 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

This cor. stands on W. slope about 15 ft. above bottom of ravine.

A yellow pine tree 18 ins. dia. bears N. 17° E. 198 lks. dist. marked Colo., 158 M., B.T.

A yellow pine tree 18 ins. dia. bears S. 35° E. 384 lks. dist. marked N.M., 158 M., B.T.

A yellow pine tree 18 ins. dia. bears S. 71½° W. 73 lks. dist. marked N.M., 158 M., B.T.

A yellow pine tree 18 ins. dia. bears N. 32° W. 198 lks. dist. marked Colo., 158 M., B.T.

Land, mountainous.

Soil, sand and clay, rocky, 3rd rate.

Vegetation, grass; scattering pine, spruce and aspen timber; oak and aspen brush.

Alt. 9200 ft.
Temp. 75°.

——159th mile——

S. 89° 55′ E. on the tangent to the parallel; ascend.

9350 ft. 24.00 Top of bluff bears NW. and SE. Lava rim about 220 ft. above the cor.
Thence across high mesa, scattering timber.

9350 ft. 60.00 Top of wall, lava rim bears NW. and SE.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks. position of middle point
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is

9200 ft. 80.00 N. 49 lks.—Correction 777 lks. S.—S. 728 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the botto m2 ft. in the ground for 159th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 159 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine tree 16 ins. dia. bears S. 4° 10′ E. 187 lks. dist. marked N.M., 159 M., B.T,
A yellow pine tree 16 ins. dia. bears N. 0° 45′ W. 353 lks. dist. marked Colo., 159 M., B.T.
No other trees within limits suitable for bearing trees.
Land, mountainous.
Soil, sand and clay, rocky, 3rd rate.
Vegetation, grass; scattering pine, spruce and aspen timber; oak and aspen brush.
Alt. 9200 ft.
Temp. 75°.

——160th mile——

S. 89° 55′ E. on the tangent to the parallel. Along N. slope in dense brush and scattering timber.

9250 ft. 50.00 Top of wall lava rim bears NE. and SW. about 50 ft. above last corner, thence across lava mesa.

70.40 D. & R. G. R.R. track bears NE. and SW. about ¼ mile N. of Big Horn section house.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 16 lks. position of middle point

By 1st set 80.08 chs.

By 2nd set 79.92 chs.; the mean of which is

9200 ft. 80.00 N. 62 lks.—Correction 798 lks. S.=S. 736 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 160th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 160 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

No trees within limits.

This corner stands on lava mesa, near center of parquette made by D. & R. G. R.R. to gain grade.

Land, broken and rock.

Soil, clay and volcanic ash, 3rd rate.

Vegetation, soap-weed; scattering pine, spruce and aspen timber; and aspen brush.

Alt. 9200 ft.

Temp. 80°.

——161st mile——

S. 89° 54′ E. on the tangent to the parallel. Descending gradually over lava mesa.

10.08 Center of D. & R. G. R.R. track, bears NE. and SW.

35.00 Leave scattering timber, bears N. and S.

Difference between measurements of 80.00

chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is
9050 ft. 80.00 N. 76 lks.—Correction 819 lks. S.—S. 743 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 161st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 161 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
W. edge of timber on peak bears N. 22½° W. about 5 miles dist.
Sharp timbered peak bears E. 7° 20′ W. about 2 miles dist.
Top of Ute Peak bears S. 78½° E. about 25 miles dist.
Land, volcanic mesa.
Soil, sand, clay, volcanic ash, 4th rate.
Vegetation, soap-weed; scattering pine and pinon.
Alt. 9050 ft.
Temp. 75°.

July 19th, 1903.

I examine the instrument and compare the steel tapes with the standard, find all correct and in adjustment.

——162nd mile——

S. 89° 53′ E. on the tangent to the parallel.
Descend gradually over mesa.
9000 ft. 22.00 Top of lava wall, or rim, bears NE. and SW.
Leave mesa; descend, enter scattering pinon and cedar bears NE. and SW.
8660 ft. 48.00 Foot of slope dry gulch, course NE. and about 300 ft. below top of bluff; ascend.
49.00 Darling's 170th mile cor. bears S. 32.90 chs. dist., a lava stone 15x10x8 ins. set in a pile

of rock, marked C. on N., 170 on E., N.M. on S. and .68 on W. I destroyed this corner.
Ran West from this point.
80.00 chs.—Darling's 171st mile cor. 10 lks. S. A lava stone 14x10x7 ins. in a pile of stone, marked C. on N., 171 on E., N.M. on S. and .68 on W. I destroyed this cor.
Ran West.
80.00 chs.—Failed to find Darling's 172nd mile cor. and failed to find any more of the Darling corners till I reach his 6th Astronomical Station, on his 182nd mile, W. of Toltec Gorge, previously described. I now run East from the site of Darling's 170th mile corner and make search at each mile, but fail to find any corners, till I reach his 165th mile cor., near our Astronomical Station No. 4,—a lava stone 14x10x8 ins. marks illegible.

57.60 Wagon road, Antonito to Big Horn Station, bears NE. and SW.

8650 ft. 60.00 Top of hill bears NE. and SW.
Thence over gently rolling hills.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 16 lks. position of middle point
By 1st set 80.08 chs.
By 2nd set 79.92 chs.; the mean of which is

8650 ft. 80.00 N. 92 lks.—Correction 840 S.—S. 748 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 162nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 162 M. Stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
Land, mesa and rolling.
Soil, sandy and volcanic ash, 3rd rate.
Vegetation, grass, sage, soapweed; scattering cedar and pinon.

Alt. 8650 ft.
Temp. 65°.

——163rd mile——

S. 89° 53′ E. on the tangent to the parallel.
Over gently rolling land.

57.90 Center of D. & R. G. R.R. track bears N. 51° E. for about 20 chs., then curves to N. and S. 51° W. about 6 chs. then curves to the S.
Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks., position of middle point
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is

8420 ft. 80.00 N. 110 lks.—Correction 861 lks. S.—S. 751 lks. from the tangent,
Set temporary cor. See page 419.
Land, rolling.
Soil, sandy, 3rd rate.
Vegetation, grass, scrub pinon, both N. and S. of this line.
Alt. 8420 ft.
Temp. 70°.

——164th mile——

S. 89° 52′ E. on the tangent to the parallel.
Descending gradually across little valley, that bears NE. and SW.

8400 ft. 64.00 Foot of bluff that bears NE. and SW.
Leave valley, ascend.

80.00 Comes on W. slope of bluff.
I advance this cor.
Land, mostly valley.
Soil, sandy, 3rd rate.
Vegetation, grass, sage and scattering pinon.

——165th mile——

S. 89° 52′ E. on the tangent to the parallel.
Ascend.

4.00 Brow of bluffs bears NE. and SW.
Ascend gradually.

		Difference between measurements of 88.00 chs. by 2 sets of chainmen is 10 lks., position of middle point
		By 1st set 88.05 chs.,
		By 2nd set 87.95 chs.; the mean of which is 88.00 chs.,—80.00 chs. =8.00 chs. on the 165th mile.
8500 ft.	8.00	N. 131 lks.—Correction, 884 lks. S.=S. 753 lks. from the tangent.
		Set temporary cor.
		Alt. 8500 ft.
		Temp. 75°.
		Thence across lava mesa.
8500 ft.	26.00	E. edge of mesa bears NE. and SW.
		Descend.
	44.00	Foot of bluff about 250 ft. high bears NE. and SW.
	44.23	Wagon road bears N. 37° E. and S. 37° W.
		Descend gradually.
	44.50	Fence bears NE. and SW.
	47.15	Irrigating ditch, course NE.
		Enter cultivated field bears NE. and SW.
		Difference between measurements of 72.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
		By 1st set 72.03 chs.;
		By 2nd set 71.97 chs.; the mean of which is 72.00 chs.+8.00 chs.=
8200 ft.	80.00	N. 150 lks.—Correction 903 lks. S.= S.753 lks. from the tangent.
		Set temporary cor.
		This cor. stands in a cultivated field.
		Land, high table and valley.
		Soil, 2nd and 3rd rate.
		Vegetation, grass, sage and wheat, alfalfa and pease.
		Alt. 8200 ft.
		Temp. 80°.

——166th mile——

S. 89° 51′ E. on the tangent to the parallel.
Across bottom land, through growing crops.

	17.60	Irrigating ditch 10 lks. wide, course NE.
	40.00	A good house about 5 chs. N.
	65.00	Center of main street in Ortiz bears N. 25° W. and S. 25° E. about 10 chs. each way and jogs off to the E. at each end.
	67.00	SW. cor. of Garcia's house, the largest house in Ortiz.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
8180 ft.	80.00	N. 172 lks.—Correction 924 lks. S.—S. 752 lks. from the tangent,
		Set temporary cor.
		This cor. stands in cultivated field.
		The point for this cor. was determined from the astronomical observations, and was located April 21st, 1903.
		Land, creek bottom.
		Land, gravelly loam, 2nd rate.
		Vegetation, cultivated crops, wheat, oats, corn, alfalfa pease and potatoes.
		Alt. 8180 ft.
		Temp. 80°.

July 20th, 1903.

On April 20th, I assembled the Surveying Corps at Antonito, Colorado.

April 21st proceed to Ortiz to our 4th Astronomical Station, where we left off work last December.

From the Astronomical observations made at this station on the nights of October 12, and 13th, 1902, I locate the 37th parallel of North Latitude and also locate a point on the boundary line within the limit of 3″ of arc allowed by the Hon. Commissioner, for the 166th mile cor.

I find the snow is still too deep on the Conejos and Navajo Ranges to admit making the required correction of the line from the

122nd cor. to this point.
Therefore, that portion of the line was left till later in the season, as shown by the dates on the foregoing field notes.
April 22nd, 1903 at 5h 30m A. M. l.m.t. at the point for the 166th mile cor. I observe Polaris at Eastern elongation and mark a point in the line so determined on a plug driven in the ground N. of my station.
At 6h 50m A. M. I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground north of my station.
The magnetic bearing of the meridian is N. 13° 44′ W. This gives the magnetic variation 14° 44′ E.
I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

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——167th mile——

East on the tangent to the parallel.
Along creek bottom and over cultivated land.

33.27 W. edge of San Antonio Creek, 1 ch. wide, clear water, 2 ft. deep, course NE.

34.87 E. edge of creek bears NE. and SW.; bank 2½ ft. high, fringe of willow brush along creek.

44.00 Point of lava hill from SW.

46.00 Mexican adobe about 1 ch. S.

51.90 Our Astronomical station bears S. 26.90 chs. dist.
The latitude of this station was found to be 36° 59′ 45.22″—22.64 chs. S. of true parallel. Out line is, therefore 4.26 chs. N. of the true parallel as determined by astronomical observations, but within the limits of 3″ of arc allowed by the Hon. Commissioner.

As this point comes in a cultivated field I advance the astronomical monument to the E. edge of it.

(See page 421.)

8180 ft. 60.80 N. ½ lk. from the tangent.
Set temporary astronomical monument.
Leave cultivated land, bears N. and S.; ascend.

8260 ft. 64.11 Top of bluff on rimrock of black lava about 75 ft. high. bears NE. and SW. Thence across lava mesa.

77.90 Wagon road, bears N. and S.
Difference between measurements of 80.00 chs. 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

8260 ft. 80.00 N. .76 of a link from the tangent,
Set temporary cor.
Land, mesa and valley.
Soil, gravelly loam and volcanic ash, 2nd and 4th rate.
Vegetation, growing crops in valley, some grass and weeds on mesa.
Alt. 8260 ft.
Temp. 52°.

——168th mile——

S. 89° 59′ E. on the tangent to the parallel.
Over malpais or volcanic rock and sand.

51.50 Darling's 164th mile cor. bears S. 29.00 chs. dist.
A lava stone 16x10x8 ins. No mound of other witness.
I destroy the marks.
The Darling corners were found and destroyed from this point eastward to the foot of the Culebra Range.
They consisted of lava stones from 16 to 24 ins. in length, other dimensions much the same as the 164th mile cor.
They were nearly all lying on the ground,

not witnessed in any way. They were generally well and distinctly marked.

63.85 Wagon road, bears N. and S.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point,

By 1st set 80.01 chs.

By 2nd set 79.99 chs.; the mean of which is

8275 ft. 80.00 N. 3 lks. from the tangent,

Set temporary cor.

Land, lava mesa, gently rolling.

Soil, sand and volcanic ash, 4th rate.

Vegetation, a little grass and weeds, practically a desert.

Alt. 8275 ft.

Temp. 65°.

——169th mile——

S. 89° 59′ E. on the tangent to the parallel.

Over volcanic mesa.

27.81 Center of D. & R. G. R.R. track bears N. and S. runs from Antonito to Santa Fe.

70.00 Wagon road bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is

8250 ft. 80.00 N. 7 lks. from the tangent,

Set temporary cor.

Land, gently rolling, volcanic mesa.

Soil, rocky and sandy, 4th rate.

Vegetation, scanty, weeds and greasewood.

Alt. 8250 ft.

Temp. 62°.

——170th mile——

S. 89° 58′ E. on the tangent to the parallel.

68.00 Hollow drains NE., 30 ft. deep; ascend.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point

By 1st set 80.02 chs.

By 2nd set 79.98 chs.; the mean of which is

8200 ft. 80.00 N. 12 lks. from the tangent,
Set temporary corner.
Land, volcanic mesa.
Soil, sandy and rocky, 4th rate.
Vegetation, scanty, weeds and greasewood.
Alt. 8200 ft.
Temp. 62°.

——171st mile——

S. 89° 57′ E. on the tangent to the parallel.
Over volcanic mesa.

20.70 Wagon road, bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.,
By 2nd set 79.99 chs.; the mean of which is

8120 ft. 80.00 N. 19 lks. from the tangent,
Set temporary cor.
Land, mesa.
Soil, sandy and rocky, 4th rate.
Vegetation, weeds and greasewood.
Alt. 8120 ft.
Temp. 66°.

——172nd mile——

S. 89° 57′ E. on the tangent to the parallel.
Over mesa.

20.60 Wagon road bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

8100 ft. 80.00 N. 27 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 172nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M., on S. and 172 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.

No bearing.
Land, nearly level, volcanic mesa.
Vegetation, weeds and greasewood.
Alt. 8100 ft.
Temp. 70°.

——173rd mile——

S. 89° 56′ E. on the tangent to the parallel.
Over nearly level land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

8057 ft. 80.00 N. 37 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 18 ins. in the ground to bed rock for 173rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 173 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
Low peak S. end of pinon hills bears N. 5° W. about 2 miles dist.
Top of San Antonio Mountain bears S. 31° W.
Land, nearly level, volcanic mesa.
Soil, rocky and sandy, 4th rate.
Vegetation, weeds and greasewood.
Alt. 8075 ft.
Temp. 70°.

——174th mile——

S. 89° 55′ E. on the tangent to the parallel.
Descend over gently rolling land.
2.00 Bottom of hollow 15 ft. deep, drains NE.; ascend.
28.00 Top of ridge about 30 ft. high, bears NE. and SW.
Descend gradually.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

8100 ft. 80.00 N. 49 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 174th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 174 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
Top of Ute Peak bears S. 70° 20′ E.
Top of San Antonio Mountain bears S. 35° 10′ W.
Land, gently rolling mesa.
Soil, rocky and sandy, 4th rate.
Vegetation, weeds and greasewood.
Alt. 8100 ft.
Temp. 68°.

—175th mile—

S. 89° 55′ E. on the tangent to the parallel.
Over gently rolling mesa.

42.40 Wagon road, bears NW. and SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

7980 ft. 80.00 N. 62 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 18 ins. in the ground to bed rock for 175th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 175 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

Top of San Antonio Mountain bears S. 38 50′ W.
Top of Ute Peak bears S. 68 45′ E.
Land, nearly level mesa.
Soil, rocky and sandy, 4th rate.
Vegetation, scanty weeds and greasewood.
Alt. 7980 ft.
Temp. 68°.

April 22nd, 1903.

——176th mile——

I examine the instrument and compare the steel tapes with the standard, find the instrument in perfect adjustment and the tapes of correct length.

S. 89° 54′ E. on the tangent to the parallel.
Descend over gently rolling mesa.

11.00 Draw, drains N. Irrigating ditch now dry, 1 ch. N., course NW. to NE.

57.58 Wagon road bears N. and S.

65.45 Top of ridge about 30 ft. high, bears NW. and SE.
Descend.

72.60 Irrigating ditch, now dry, at foot of ridge, course SE.
Thence across flat.
Difference between measurement of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.

7950 ft. 80.00 N. 75 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 12 ins. in the ground to bed rock, for 176th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 176 M. stamped in the center.
Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
No bearings.
Land, gently rolling mesa.
Soil, rocky and sandy, 4th rate.

Vegetation, weeds and greasewood.
Alt. 7950 ft.
Temp. 58°.

——177th mile——

S. 89° 53′ E. on the tangent to the parallel.
Over gently rolling mesa.

70.00 Foot of low ridge bears NE. and SW.; ascend.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

8000 ft. 80.00 N. 92 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock, for 177th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 177 M. stamped in the center. Raised a mound of stone 6 ft. base, 3 ft. high around the post. Pits impracticable.
Top of San Antonio Mountain bears S. 44½° W.
Low peak S. end of pinon hills bears N. 69½° W.
Top of Ute Peak bears S. 65½° E.
About 2 miles N. to foot of pinon hills.
Land, lava mesa.
Soil, volcanic ash and sand, 4th rate.
Vegetation, scanty salt sage, grass, weeds and greasewood.
Alt. 8000 ft.
Temp. 62°.

——178th mile——

S. 89° 53′ E. on the tangent to the parallel.
Over nearly level mesa.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position

of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

7950 ft. 80.00 N. 110 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 178th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. 178 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
Low peak, S. end of pinon hills bears N. 73° W.
Top of San Antonio Mountain bears S. 47½° W.
Land, nearly level mesa.
Soil, sand and volcanic ash, 4th rate.
Vegetation, scanty, grass, weeds, salt sage and greasewood.
Alt. 7950 ft.
Temp. 70°.

——179th mile——

S. 89° 52′ E. on the tangent to the parallel.
Descend.

3.75 Bottom of draw drains NE.; ascend, leave mesa, bears NE. and SW.
4.00 Irrigating ditch, now dry, course NE.
5.00 Top of spur, slope NW.
Bottom of gulch, dry, course NW.
10.00 Foot of hill, bears NW. and SE.; ascend.
29.00 Top of spur, slope S.; descend gradually.
40.00 Head of draw, drains NE.
Ascend hill bears NE. and SW.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

8100 ft. 80.00 N. 129 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 179th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S., and 179 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post.
Pits impracticable.
This corner stands on point of spur, slope N.
No bearings.
Land, rolling.
Soil, sandy, 4th rate.
Vegetation, scanty, grass, weeds and grease wood.
Alt. 8100 ft.
Temp. 70°.

——180th mile——

S. 89° 52' E. on the tangent to the parallel.
Over rolling hills; descending.

10.00 In hollow drains N.; ascend.

21.00 Top of spur about 5 ft. high, slope N.; descend.

38.00 Bottom of ravine 50 ft. deep, course NW.; ascend.

8200 ft. 61.50 Top of ridge in gap or saddle. Peak 100 ft. higher about 10 chs. SW. and peak about the same height about 20 chs. N.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

8150 ft. 80.00 N. 150 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 180th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 180 M. stamped in the center.

Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.
No bearings.
Land, rolling hills.
Soil, sandy and rocky, 4th rate.
Vegetation, salt sage, cactus and greasewood.
Alt. 8150 ft.
Temp. 72°.

——181st mile——

S. 89° 51′ E. on the tangent to the parallel.
Ascend over broken rock.

8200 ft. 37.00 Lava ridge bears NE. and SW.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

8100 ft. 80.00 N. 172 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 181st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M on S. and 181 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This cor. stands at foot of small black butte, the top of which is about 10 chs. N.
No bearings.
Land, rolling.
Soil, rocky and sandy, 4th rate.
Vegetation, salt sage, cactus and greasewood.
Alt. 8100 ft.
Temp. 72°.

——182nd mile——

S. 89° 30′ E. on the tangent to the parallel.
Descending gradually.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks.; position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

8000 ft. 80.00 N. 196 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock, for 182nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 182 stamped in the center. Raised a mound of stone 5 ft. base. 3 ft. high around the post Pits impracticable.
Top of little black butte, bears N. 87½° W. about one mile dist.
Ute Peak bears S. 44° E.
Top of San Antonio Mountain bears S. 55° W.
Land, sloping E. and NE.
Soil, sandy, 4th rate.
Vegetation, salt sage, cactus and grease wood.
Alt. 8000 ft.
Temp. 72°.

——183rd mile——

S. 89° 50′ E. on the tangent to the parallel. Descending gradually.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

7900 ft. 80.00 N. 221 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 183rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 183 M. stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
Ute peak bears S. 32° E.
Top of San Antonio Mt. bears S. 59° 45′ W
Land, sloping gently E.
Soil, very sandy, 4th rate.
Vegetation, salt sage and greasewood.
Alt. 7900 ft.
Temp. 76°.

——184th mile——

S. 89° 49′ E. on the tangent to the parallel. Descending gradually.

7825 ft.	40.20	On top of wall, brink of canon of Rio Grande, bears N. and SE. Difference between measurements of 40.20 chs. by 2 sets of chainmen is nothing; the mean is 40.20 chs.
	40.20	Stadia measurement from this point Angle 0°, Rod 9.20 double=1840 ft.+C.= 1.15 ft.=1841.15 ft.=27.89 chs.+40.20 chs.= 68.09 chs.
	46.00	Foot of wall about 125 ft. high, bears N. and SE.
	50.00	Rio Grande River, 2 chs. wide, water 3 ft. deep, course SE.
7700 ft.	62.00	Foot of wall of canon bears N. and S.
7825 ft.	65.90	Top of wall about 125 ft. high, bears NE. and S.
	68.09	Stadia point, thence by tape measurement, over nearly level land.
7825 ft.	80.00	N. 247 lks. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground, for 184th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N M on S. and 184 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. E. peak of Sierra Blanca bears N. 18° 10′ E. Ute Peak S. 24° E.

Top of San Antonio Mt. bears S. 58° 20′ W.
Land, mesa and canon.
Vegetation, greasewood and cactus, fringe of willow in canon.
Alt. 7825 ft.
Temp. 70°.

April 23rd, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct this morning.

——185th mile——

S. 89° 48′ E. on the tangent to the parallel, over gently rolling valley land.

7830 ft. 35.00 Top of ridge bears NW. and SE. about 30 ft. above last corner; descend.

56.32 Wagon road, bears NW. and SE. from the Rio Grande bridge about 6 miles N. to Taos, N.M.

75.00 Enter creek bottom, beard NE. and SW.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

7800 ft. 80.00 N. 275 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 185th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 185 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. Raised a mound of earth 5 ft. base around the post.
This cor. stands on creek bottom.
San Antonio Mt. bears S. 61° W.
Ute Peak bears S. 11° E.
Land, rolling and creek bottom.
Soil, sandy, 3rd rate and 4th rate.

Vegetation, scanty, grass, sage and rabbit brush.
Alt. 7800 ft.
Temp. 70°.

186th mile

S. 89° 48' E. on the tangent to the parallel.
Across creek bottom.

7790 ft.	10.32	Costilla River 1 ch. wide, muddy water, about 6 ins. deep, course SW.
	24.50	Wagon road bears NE. and SW.; ascend gradually.
7850 ft.	74.00	Top of bluff about 20 ft. high bears NE. and SW.
		Descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point,
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs.
7825 ft.	80.00	N. 305 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4ft. long with flanges at the bottom 2 ft. in the ground for 186th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 186 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		No bearings.
		This cor. stands at foot of bluff about 12 ft. high, bears NE. and SW.
		Alt. 7825 ft.
		Temp. 72°.

187th mil

S. 89° 47' E. on the tangent to the parallel, over nearly level land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing, the mean is 80.00 chs.

7850 ft. 80.00 N. 337 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 187th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 187 M. stamped in the center. Dug Pits 36x36x18 ins. N., S., E. and W of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base, 2 ft. high around the post.
Ute Peak bears S. 17° 10′ W.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage.
Alt. 7850 ft.
Temp. 76°.

——188th mile——

S. 89° 46′ E. on the tangent to the parallel.
2.90 Wagon road bears NE. and SW.
47.65 Wagon road bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
7870 ft. 80.00 N. 370 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 188th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 188 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A red peak in the pinon hills bears N. 60° W.
Ute Peak bears S. 29° W.
Land, nearly level.
Soil, gravelly, 3 rd rate.
Vegetation, grass and sage.
Alt. 7870 ft.
Temp. 76°.

——189th mile——

S. 89° 46′ E. on the tangent to the parallel. Over nearly level land.
Difference between measurements of 80.00 chs.by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 80.02 chs.;
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

7900 ft. 80.00 N. 404 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 189th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 189 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist., Raised a mound of stone 5 ft. base 2 ft. high around the post.
Red Peak bears N. 62° 15′ W.
Ute Peak bears S. 37½° W. Chefolo Peak bears S. 15½° W.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage.
Alt. 7900 ft.
Temp. 76°.

——190th mile——

S. 89° 45′ E. on the tangent to the parallel. Over nearly level land.
Difference between measurements of 80.00 chs. by 2sets of chainmen is 2 lks. position of middle point
By 1st set 70.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

7900 ft. 80.00 N. 440 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 190th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 190 M. stamped in the center. Dug

pits 36x36x18 ins. dia. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
East peak of the Sierra Blanca bears N. 12° 35′ E.
Ute Peak bears S. 45½° W.
Chefolo Peak bears S. 18½° W.
Land, nearly level.
Soil, very gravelly, 3rd rate.
Vegetation, grass and sage.
Alt. 7900 ft.
Temp. 72°.

——191st mile——

S. 89° 44′ E. on the tangent to the parallel.
Over nearly level land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

7860 ft. 80.00 N. 477 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 191st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 191 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
Sierra Blanca (East Peak) bears N. 10° 35′ E.
Red Peak in pinon hills bears N. 66° 35′ W.
Chefolo Peak bears S. 21° W.
Church spire in Costilla bears S. 73° 25′ E.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage.
Alt. 7860 ft.
Temp. 65°.

I carefully adjust the transit in all its parts.
April 24th, 1903.

At the 191st mile cor. April 25th, 1903 at 5h 18m A. M. l.m.t. I observe Polaris at Eastern elongation and mark a point in the line so determined on a plug driven in the ground 10 chs. N. of my station.

At 7 h A. M., I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station.

The magnetic bearing of the meridian is N. 13° 10′ W.

This gives the magnetic declination 13° 10′ E.

I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.

In all these observations, and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

I compare the steel tapes with the standard and I find them of correct length.

——192nd mile——

East on the tangent to the parallel.

Over nearly level land.

12.80 Wagon road bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 80.03 chs.

By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

7850 ft. 80.00 N. .76 of a link from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 192 nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 192 M. stamped in the

center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth, 5 ft. base 2 ft. high around post.
East peak Sierra Blanca, bears N. 9° 35′ E.
Red peak in pinon hills, SW. of Rio Grande bridge bears N. 68° W.
Chefolo Peak bears S. 24° 10′ W.
Church spire in Costilla bears S. 65° 10′ E. about 2 miles dist.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage.
Alt. 7850 ft.
Temp. 56°.

——193rd mile——

S. 89° 59′ E. on the tangent to the parallel, over nearly level land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is
7900 ft. 80.00 N. 3 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 193rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 193 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist.
Raised a mound of earth 5 ft. base, 2 ft. high around the post.
East peak Sierra Blanca bears N. 9° 15′ S.
Ute Peak bears S. 60½° W.
Church spire in Costilla bears S. 45½° E. about a mile dist.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage.

Alt. 7900 ft.
Temp. 62°.

—194th mile—

S. 89° 50′ E. on the tangent to the parallel.

21.00 Wagon road bears NE. and SW.

29.55 Irrigation ditch, course N.

30.00 Pole fence bears N. and S.; enter cultivated fields bears N. and S.

61.48 W. side of Mexican adobe house in village of La Costilla about ½ mile North of the church. Line strikes house about 10 ft. N. of the S. end.

68.00 Street bears NW. and SE.

74.00 W. bank of La Costilla River, bears N. 10° E. and S. 10° W. 4 ft. high, stream 150 lks. wide, 6 ins. deep, muddy water swift current, course NE.

78.00 E. bank about 3 ft. high, bears N. and S.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks. position of middle point,

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

7950 ft. 80.00 N. 7 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 194th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 194 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of stone 5 ft. base 2 ft. high around the post.

This cor. stands on right bank of Costilla River by wire fence, at west edge of cultivated field.

A cottonwood tree 30 ins. dia. bears N. 78° E. 292 lks. dist. marked Colo., 194 M., B.T.

A cottonwood tree 26 ins. dia. bears S. 22° E. 322 lks. dist. marked N.M., 194 M., B. T.

No other trees within limit suitable for bearing trees.
Church spire in Costilla bears S. 5¼ W. about ½ mile dist.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass, sage and cultivated crops.
A few cottonwood trees along E side of river.
Alt. 7950 ft.
Temp. 64°.

——195th mile——

S. 89° 58' E. on the tangent to the parallel, across river bottom. Enter cultivated field.

2.50 Irrigating ditch, course N.

3.00 Narrow line of willow brush bears NE. and SW.

6.00 Leave brush, enter cultivated field. Bears NE. and SW.

79.90 Brook 2 lks. wide, course NE.
Difference between measurement of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point,
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

8000 ft. 80.00 N. 12 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 195th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 195 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist.
Raised a mound of earth 5 ft. base 2 ft. high around the post.
West pit comes in brook. Impracticable.
This cor. stands on right bank of stream.
No bearings.
Land sloping gradually toward river.
Soil, gravelly, 3rd rate.

Vegetation, cultivated crops.
Alt. 8000 ft.
Temp. 60°.

——196th mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascending gradually.

7.50 Leave cultivated land, bears NE. and SW.

10.90 Wire fence bears NE. and SW.

8020 ft. 12.00 Wagon road, bears NE. and SW.
Foot of hills bears NE. and SW.; ascend.
Difference between measurements of 20.30 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 20.31 chs.
By 2nd set 20.29 chs.; the mean of which is 20.30 chs.

20.30 On bench bears NE. and SW.
Stadia measurement from this point,
Angle 6+, Rod 12.50 single=1250 ft.× .9891.38 ft.+C.=1.14 ft.=1237.52 ft.=18.75 chs.+20.30 chs.=39.05 chs.

39.05 Stadia point on bench bears N. and S.
Stadia measurement,
Angle 9°+, Rod 7.65 single=765 ft.×.9755 =746.25 ft.+C.=1.13 ft.=747.39 ft.=11.32 chs.+39.05 chs.=50.37 chs.

50.37 Stadia point on bench, bears N. and S.
Enter pinon timber, bears N. and S.
Stadia measurement,
Angle 11°+, Rod 11.29 double=2258 ft.× .9636=2175.81 ft.+C.=1.13 ft.=2176.94 ft. =32.98 chs.+83.25 chs.=.80 chs.=3.35 chs. on 197th mile.

80.00 Comes on steep W. slope of lava wall. Impracticable to establish the cor. at this point.
Land, rough and broken.
Soil, rocky, and sandy, 4th rate.
Vegetation, grass, sage and pinon timber.

——197th mile——

S. 89° 57′ E. on the tangent to the parallel.

Ascend.

3.35 On top of lava rim rock bears N. and S. Stadia point, thence by tape measurement,

8550 ft. 4.00 N. 20 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 196th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 196.05 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 7 ins. dia. bears N. 34½° E. 23 lks. dist. marked Colo. 196.05 M., B.T.
A pinon tree 7 ins. dia. bears S. 66½° E. 102 lks. dist. marked N.M., 196.05 M., B.T.
A cedar tree 8 ins. dia. bears S. 7¼° W. 78 lks. dist. marked N.M., 196.05 M., B.T.
A cedar tree 8 ins. dia. bears N. 8½° W. 48 lks. dist. marked Colo., 196.05 M., B.T.
Alt. 8550 ft.
Temp. 55°.
Thence over top of lava hill.

20.00 Descend gradually, slope SE.

31.00 Leave timber bears N. and S. Enter heavy sage brush.

32.00 Wagon road bears NW. and SE.

79.60 Wagon road, bears NE. and SW.
Difference between measurements of 76.00 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 76.03 chs.
By 2nd set 75.97 chs.; the mean of which is 76.00 chs. +4.00 chs.=80.00 chs.

8500 ft. 80.00 N. 27 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 18 ins. in the ground to bed rock, for 197th mile cor. A brass cap on the top of pipe has raised letters Colo. on N., N.M. on S. and 197 M. stamped in the center. Raised a mound of stone, 6 ft. base, 2½ ft. high around the post. Pits impracticable.

First peak on main range N. of the line bears N. 71° 20′ E.
A sharp timbered peak bears S. 6° 25′ W.
Land, mountainous.
Soil, rocky, clay and sand, 3rd rate.
Vegetation, sage, cedar and pinon.
Alt. 8500 ft.
Temp. 55°.

S. 89° 56′ E. on the tangent to the parallel. Descending.

7.30 Dry ravine, course S. about 50 ft. deep; ascend.

12.00 Top of rocky spur, about 50 ft. high, slope SE.

31.00 On spur, slope SE.; descend. Enter scattering pinon.

47.00 Foot of hills, leave timber. Enter Arroyo Seca valley bears NE. and SW.

64.40 Wagon road, bears NE. and SW.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point,
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

8450 ft. 80.00 N. 37 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 198th mile cor.
Abrass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 198 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor 6 ft. dist.
Raised a mound of earth, 5 ft. base 2 ft. high around the post.
Sharp peak of main range bears N. 70½° E.
Timbered peak bears S. 16¼° W.
Ute Peak bears S. 71° W.
Land, rolling.
Soil, sandy, 3rd rate.
Vegetation, grass, sage and scattering

pinon.
Alt. 8450 ft.
Temp. 48°.

April 25th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.

——199th mile——

S. 89° 55′ E. on the tangent to the parallel.
Over gently rolling land.
44.14 Wagon road, bears NE. and SW.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.
8500 ft. 80.00 N. 14 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 199th mile cor. A brass [redacted] top of the pipe has raised letters Colo. on N., N.M. on S. and 199 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Sharp timbered peak bears S. 26° W.
Peak on main range N. of line bears N. 69¼° E.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage.
Alt. 8500 ft.
Temp. 45°.

——200th mile——

S. 89° 55′ E. on the tangent to the parallel.
66.97 Wagon road bears NE. and SW.
Difference between measurements of 80.00

chs. by 2 sets of chainmen is nothing; the mean of which is 80.00 chs.

8500 ft. 80.00 N. 62 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 200th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 200 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of stone 5 ft. base 2 ft. high around the post.
East peak of Sierra Blanca bears N. 0° 45′ W.
Small cone in valley bears N. 5¼° W. about 3 miles dist.
Sharp timbered peak bears S. 34¼° W.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage.
Alt. 8500 ft.
Temp. 52°.

——201st mile——

S. 89° 54′ E. on the tangent to the parallel.

57.10 Gusch, stream 3 lks. wide, course N.

8550 ft. 61.00 Foot of hills, leave valley, bears NE. and SW.; ascend, an irrigated meadow S. of line.
Mexican house about 20 chs. S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks. position of middle point.
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

8650 ft. 80.00 N. 76 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 201st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 201 M. stamper in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the

cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
Small cone in valley bears N. 23½° W.
East peak Sierra Blanca bears N. 2½° W.
Ute Peak bears S. 74° 45′ W.
Land, gently rolling.
Soil, sand, clay, 3rd rate.
Vegetation, grass and sage.
Alt. 8650 ft.
Temp. 60°.

——202nd mile——

S. 89° 53′ E. on the tangent to the parallel.

8700 ft. 44.00 Foot of mountains, Culebra range, bears N. and S.
Ascend.

55.00 A pile of stone, but no legible marks, which I take to be Darling's 130th mile cor., bears S. 24.00 chs. from the tangent. I find no Darling corners E., of here until I reach his 117th mile cor.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point,
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is 80.00 chs.

8800 ft. 80.00 N. 92 lks from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 202nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 202 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
Ute Peak bears S. 75½° W.
Small cone in valley bears N. 37° 45′ W. about 5 miles dist.
East peak of Sierra Blanca bears N. 4° W.
Land, mountainous.
Soil, clay loam, 3rd rate.

Vegetation, grass and sage.
Alt. 8800 ft.
Temp. 55°.

——203rd mile——

S. 89° 53′ E. on the tangent to the parallel.
Ascend along NW. slope.

21.00 Enter oak, willow and aspen brush; and aspen timber bears NW. and S.

79.75 Dry ravine 15 ft. deep, course N.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point
By 1st set 80.04 chs.
By 2nd set 80.06 chs.: the mean of which is 80.00 chs.

8850 ft. 80.00 N. 110 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 203rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 203 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine tree 36 ins. dia. bears N. 28½° E. 149 lks. dist. marked Colo. 203 M., B.T.
An aspen tree 7 ins. dia. bears S. 41½° E. 17 lks.. dist marked N.M., 203 M., B.T.
An aspen tree 6 ins. dia. bears S. 49½° W. 60 lks. dist. marked N.M., 203 M., B.T.
A balsam fir tree 10 ins. dia. bears N. 33½° W. 55 lks. dist. marked Colo., 203 M., B.T.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, scattering pine and aspen timber; oak, aspen and willow brush.
Alt. 8850 ft.
Temp. 55°.

April 26th, 1903.

From the 203rd mile cor. the line was run over the mountain range as a random, ow-

ing to the snow being too deep to set the permanent corners.

At 217 miles 3.55 chs., I intersect a meridian line from the 5th Astronomical station at 32.44 chs. N. of said station.

The latitude of this station as determined by astronomical observations, made on the nights of October 21st, 22nd and 23rd, 1902, is 36° 35.95″ or 36.84 chs., South of the true parallel.

Our offset for this point is 19 lks. N. of the tangent, which would place the boundary line as projected from the W. 4.21 chs. S. of the true parallel (inside the limit) but as this line has been run from the 203rd mile as a random line, I make the offset from the tangent at our 217th mile cor. 271 lks. N. of the tangent, and locate the point for the 217th mile cor. 35.15 chs. N. of the Astronomical station and 169 lks. S. of the 37th parallel, as determined by astronomical observations.

This will amount to a correction of 18 lks. to the mile to the N. from the 203rd mile. I return and make this correction later in the season when the snow has gone, as will be seen by the dates given.

July 7th, 1903, I examine the transit, compare the steel tapes with the standard and find them all correct and in adjustment.

——204th mile——

S. 89° 52′ E. on the tangent to the parallel

Ascend along N. slope in timber and brush.

42.00 Stream 6 lks. wide, course NW.; ascend W. slope.

56.12 Top of spur slope S.; ascend gradually.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point,

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

9300 ft. 80.00 N. 129 lks.+Correction 18 lks. N.=147. lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 204th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 204 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This cor. stands at foot of a rock-slide on N. slope; a small lake about 20 chs. N.
An aspen tree 10 ins. dia. bears N. 40½° E. 49 lks. dist. marked Colo., 204 M., B.T.
An aspen tree, 8 ins. dia. bears S. 55½° E. 47 lks. dist. marked N.M., 204. M., B.T.
An aspen tree 8 ins. dia. bears S. 49½° W. 22 lks. dist. marked N.M., 204 M., B.T.
An aspen tree 8 ins. dia. bears N. 28° W. 22 lks. dist. marked Colo., 204 M., B.T.
Land, mountainous.
Soil, rocky, clay, 3rd. rate.
Vegetation, spruce and aspen timber; oak and aspen brush.
Alt. 9300 ft.
Temp. 75°.

——205th mile——

S. 89° 52′ E. on the tangent to the parallel.
Ascend steep NW. slope.

9830 ft. 24.88 Top of sharp spur, slope N.
Thence by stadia measurement,
Angle 5° +, Rod 13.00 double=2600 ft.×9924=2580.24 ft.+C.=1.14 ft.=2581.38 ft.=39.50 chs.+24.88 chs.=64.38 chs.

9000 ft. 55.00 Bottom of canon about 800 ft. deep; S. branch of the Calavera River, stream 10 lks. wide, course NW.; ascend.

64.38 Stadia point on spur, slope NW.

Thence by tape measurement, ascend very steep N. slope.
Difference between measurements of 40.50 chs. by 2 sets of chainmen is 6 lks. position of middle point,
By 1st set 40.53 chs.
By 2nd set 40.47 chs.; the mean of which is 40.50 chs.+39.50 chs.=80.00 chs.

10400 ft. 80.00 N. 150 lks.+Correction 36 lks. N.=186 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 205th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 205 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
This cor. stands on steep N. slope.
A spruce tree 6 ins. dia. bears N. 85° E. 30 lks. dist. marked Colo., 205 M., B.T.
An aspen tree 6 ins. dia. bears S. 53½° E. 24 lks. dist. marked N.M., 205 M., B.T.
A spruce tree 10 ins. dia. bears S. 58° W. 84 lks. dist. marked N.M., 205 M., B.T.
A spruce tree 8 ins. dia. bears N. 31° W. 52 lks. dist. marked Colo., 205 M., B.T.
Land, mountainous, rough and broken.
Soil, rocky, 4th rate.
Vegetation, spruce and aspen timber, spruce and aspen brush.
Alt. 10400 ft.
Temp. 80°.

——206th mile——

S. 89° 51′ E. on the tangent to the parallel.
Ascend through timber and brush.

14.00 Top of spur, slope SW.; ascend.

41.00 Top of bluff, bears NE. and SW.

75.00 Leave timber, bears N. and S. Ascend steep W. slope over broken rock.

11500 ft. 80.00 Comes on steep W. slope among broken

rock. Impracticable to establish corner at this point.
Land, mountainous.
Soil, rocky, 4th rate.
Vegetation, spruce and aspen, timber and brush.
Alt. 11500 ft.
Temp. 70°.

S. 89° 50′ E. on the tangent to the parallel.
Ascend very steep over broken rock.
Difference between measurements of 108.00 chs. by 2 sets of chainmen is 20 lks. position of middle point,
By 1st set 108.10 chs.
By 2nd set 107.90 chs.; the mean of which is 108.00 chs.—80.00 chs.=28.00 chs.

12000 ft. 28.00 N. 180 lks.+Correction N. 60 lks.=240 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 10 ins. in broken rock, to bed rock for 206th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 206.35 M. stamped in the center. Raised a mound of stone 6 ft. base 2½ ft. high around the post. Pits impracticable.
East peak Sierra Blanca bears N. 9° 35′ W.
Ute Peak bears S. 79° 10′ W.
Sharp peak on spur bears S. 64° 20′ W. about 2 miles dist.
This cor. stands on shoulder of mountain; a bare rock spur, slope W. above timber line.
Alt. 12000 ft.
Temp. 70°.
Ascend along spur.
Difference between measurements of 29.00 chs. by 2 sets of chainmen is 4 lks., position of middle point
By 1st set 29.92 chs.
By 2nd set 28.98 chs.; the mean of which is 29.00 chs.+28.00 chs.=57.00 chs.

57.00 Stadia measurements from this point, Angle 18°+, Rod 10.50 double=2100 ft.× .9045=1899.45 ft.+C.=1.09 ft.=1900.54 ft. =28.79 chs.+57.00 chs.=85.79 chs.—80.00 chs.=5.79 chs. on the 208th mile.

80.00 Comes on W. slope of mountain near top. I advance this cor. to the top.
Land, mountainous.
Soil, none, all rock.
Vegetation, moss and lichen.

——208th mile——

S. 89° 50′ E. on the tangent to the parallel.
Ascend over broken rock.

5.79 Stadia measurement, thence by tape measurement,

12700 ft. 8.00 N. 199 lks.+Correction 74 lks. N.=273 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in broken rock, for 207th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 207.1 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
High peak on range bears N. 44° 45′ E.
Monument on lower peak, appears to be shaft of stone, 8 or 10 ft. high, bears N. 56° E. about 5 miles dist.
East peak Sierra Blanca bears N. 10½° W.
Ute Peak in San Luis bears S. 79° 30′ W.
This cor. stands on top of high spur of the Culebra Range that bears N. and S. at this point, but the trend of the range is NE. and SW. This spur is much higher than the "divide," further E. and above timber line.
Alt. 12700 ft.
Temp. 60°.
Descend gradually.

12650 ft. 17.87 Brow of mountain bears N. and S. On snow bank about 30 ft. deep.

Stadia measurement from this point,
Angle 16°—, Rod 9.04 double=1808 ft.×
.9240=1670.59 ft.+C.=1.10 ft.=1671.69 ft.
=25.33 chs.+17.87 chs.=43.20 chs.

43.20 Stadia point on spur, slope NE. Enter timber; descend.
Stadia measurement,
Angle 17°—, Rod 6.70 double=1340 ft.×
.9145=1225.43 ft.+C.=1.10 ft.=1226.53 ft.=
18.58 chs.+43.20 chs.=61.78 chs.

50.00 Hollow drains SE.; ascend.

61.78 Stadia point on spur, slope SW.
Descend steep bluff.
Stadia measurement,
Angle 14°—, Rod 11.00 single=1100 ft.×
.9415=1035.65 ft.+C.=1.11 ft.=1036.76 ft.=
15.71+61.78 chs.=77.49 chs.

68.00 Foot of bluff bears NE. and SW.; dry ravine, course NE.
Ascend.

72.00 On flat spur, slope NE.; descend in dead fallen timber.

77.49 Stadia point, thence by tape measurement.

1000 ft. 80.00 N. 211 lks.+Correction, 90 lks. N.=311 lks. N. from the tangent,
Set an iron pipe, 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 208th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 208 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A spruce tree 5 ins. dia. bears N. 51½° E. 40 lks. dist. marked Colo., 208 M., B.T.
A spruce tree 4 ins. dia. bears S. 29½° E. 22 lks. dist. marked N.M., 208 M., B.T.
A spruce tree 5 ins. dia. bears S. 15° W. 16 lks. dist. marked N.M., 208 M., B.T.
A spruce tree 8 ins. dia. bears N. 28° W. 61 lks. dist. marked Colo., 208 M., B.T.

This cor. stands on NE. slope in dead and fallen timber, and young spruce.
Land, mountainous.
Soil, rocky, 4th rate.
Vegetation, spruce, timber and brush.
Alt. 11000 ft.
Temp. 65°.

July 7th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.

July 6th, 1903.

——209th mile——

S. 89° 49′ E. on the tangent to the parallel.
Descend in timber and brush.

10900 ft. 12.00 Brow of bluff bears NE. and SW.; descend.
17.00 Enter heavy spruce timber, bears N. and S.
10000 ft. 80.00 Comes in ravine, stream 3 lks. wide, course N.
I advance this cor.
Land, mountainous.
Soil, rocky, 4th rate.
Vegetation, spruce and aspen timber and brush.

——210th mile——

S. 89° 48′ E. on the tangent to the parallel.
Ascend.
Difference between measurements of 95.20 chs. by 2 sets of chainmen is 14 lks., position of middle point,
By 1st set 95.27 chs.
By 2nd set 95.13 chs.; the mean of which is 95.20 chs.—80.00 chs.=15.20 chs.
10050 ft. 15.20 N. 252 lks.+Correction=112 lks.=364 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 209th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 209.19 M. stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A spruce tree 6 ins. dia. bears N. 65½° E. 12 lks. dist. marked Colo., 209.19 M., B.T.
A spruce tree 6 ins. dia. bears S. 65¼° E. 72 lks. dist. marked N.M., 209.19 M., B.T.
An aspen tree 5 ins. dia. bears S. 44½° W. 94 lks. dist. marked N.M., 209.19 M., B.T.
An aspen tree 5 ins. dia. bears N. 79° W. 70 lks. dist marked Colo., 209.19 M., B. T.
This cor. stands on the top of a glacial moraine, bears N. and S.
Alt. 10050 ft.
Temp. 70°.
Descend.

20.00 Foot of bluff about 200 ft. high bears N. and S.

9850 ft. 22.00 N. fork of the Costilla River, 10 lks. wide, course SE.
Ascend.

37.60 Top of spur, slope S. about 100 ft. above creek, thence along S. slope.

67.00 Stream 6 lks. wide, course S.; ascend along S. slope over aspen covered hills.
Difference between measurements of 64.80 chs. 2 sets of chainmen is 8 lks. position of middle point,
By 1st set 64.84 chs.
By 2nd set 64.76 chs.; the mean of which is 64.80 chs.+15.20 chs.=80.00 chs.

10000 ft. 80.00 N. 275 lks.+Correction 126 lks. N.=401 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 210th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M., on S. and 210 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
An aspen tree 5 ins. dia. bears S. 75° E. 32

lks. dist. marked N.M., 210 M., B.T.
An aspen tree 6 ins. dia. bears N. 28½° W. 193 lks. dist. marked Colo., 210 M., B.T.
No other trees within limit, suitable for bearing trees.
This cor. stands on rocky SW. slope in aspen brush.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; aspen and willow brush; and scattering spruce and aspen timber.
Alt. 10000 ft.
Temp. 72°.

——211th mile——

S. 89° 48′ E. on the tangent to the parallel.
Ascend along S. slope in aspen and willow brush.

18.00 Stream 4 lks. wide, course SW.
45.00 Stream 3 lks. wide, course SW.
10900 ft. 69.00 Top of high rocky spur, slope S.; descend.
10800 ft. 79.00 Stream 4 lks. wide, in ravine, course SW.; ascend.
80.00 Comes in dense brush.
I advance this cor.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass, aspen and willow brush; scattering spruce and aspen timber.

——212th mile——

S. 89° 47′ E. on the tangent to the parallel.
Ascend through timber and brush.
Difference between measurements of 84.00 chs. by 2 sets of chainmen is 16 lks., position of middle point,
By 1st set 84.08 chs.
By 2nd set 83.92 chs.; the mean of which is 84.00 chs.—80.00 chs.=4.00 chs.
11100 ft. 4.00 N. 306 lks.+Correction 145 lks. N.=451 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for 211th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 211.05 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A spruce tree 5 ins. dia. bears N. 43½° E. 21 lks. dist. marked Colo., 211.05 M., B.T.
A spruce tree 6 ins. dia. bears S. 54¼° E. 125 lks. dist. marked N.M., 211.05 M., B.T.
A spruce tree 12 ins. dia. bears S. 54½° W. 79 lks. dist. marked N.M., 211.05 M., B.T.
A spruce tree 6 ins. dia. bears N. 74° W. 105 lks. dist. marked Colo., 211.05 M., B.T.
This cor. stands on W. slope in timber.
Alt. 11100 ft.
Temp. 72°.
Ascend.

11200 ft. 17.41 Top of Divide between the waters of the Rio Grande and those that flow eastward, bears N. for ¼ mile, then NW. and S. for 60 chs., then SW. Alt. 11200 ft.
Descend through heavy spruce timber.

30.00 Leave heavy spruce timber and enter aspen and scattering spruce timber, bears N. and S.

75.00 Foot of slope, bears NE. and SW. Enter dense willow brush, bears NE. and SW.
Difference between measurements of 76.00 chs. by 2 sets of chainmen is 10 lks., position of middle point.
By 1st set 76.05 chs.
By 2nd set 75.95 chs.; the mean of which is 76.00 chs. + 4.00 chs. = 80.00 chs.

10500 ft. 80.00 Comes in dense willow brush, ground swampy, impracticable to establish corner at this point.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, spruce and aspen timber; aspen and willow brush.

July 6th, 1903.

At the point for the 212th mile cor., as located May 4th, 1903, I observe Polaris at eastern elongation, at 4h 39m A. M. l.m.t. May 5th, 1903, and mark a point in the line so found on a plug driven in the ground N of my station. At 7h A. M. May 5th, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station.

The magnetic bearing of the meridian is N. 13° 25′ W.

This gives the magnetic variation, 13° 25′ E.

I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

May 5th, 1903.

July 5th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.

——213th mile——

East on the tangent to the parallel.

23.00 Leave willow brush and swampy ground, bears NE. and SW.

Difference between measurements of 26.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,

By 1st set 26.01 chs.

By 2nd set 25.99 chs.; the mean of which is 26.00 chs.

10500 ft. 26.00 N. .2 of a link+Correction 167 lks. N.—167.2 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for

the 212th mile cor. A brass cap on the pipe has raised letters Colo. on N., N.M. on S. and 212.325 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
An aspen tree 5 ins. dia. bears S. 7° E. 125 lks. dist. marked N.M., 212.325 M., B.T.
An aspen tree 5 ins. dia. bears S. 5½° W. 142 lks. dist. marked N.M., 212.325 M., B.T.
No other trees within limits suitable for bearing trees.
High peak on range bears N. 4½° W.
Monument(appears to be shaft of stone, 8 or 10 ft. high) on low peak bears N. 34½° W. about 4 miles dist.
Alt. 10500 ft.
Temp. 65°.

28.00 Enter dense willow brush, bears NE. and SW.

29.00 Stream 2 lks. wide, course NE.; ascend.

30.00 Leave willow, enter aspen brush, bears NE. and SW.

10700 ft. 55.00 Top of ridge bears NE. and SW.; descend.

80.00 Comes in dense brush on steep SE. slope.
I advance this cor.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass, dense aspen brush, scattering spruce and aspen timber.

——214th mile——

S. 89° 59′ E. on the tangent to the parallel.

9900 ft. 13.00 Bottom of deep ravine, course NE.; ascend.
Difference between measurements of 70.00 chs. by 2 sets of chainmen is 12 lks. position of middle point,
By 1st set 70.06 chs.
By 2nd set 69.94 chs.; the mean of which is 70.00 chs.+26.00 chs.—96.00 chs. — 80.00 chs.—16.00 chs.

9950 ft. 16.00 N. 1 lk.+Correction 183 lks. N.=184 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 213th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 213.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A spruce tree 12 ins. dia. bears N. 43½° E. 45 lks. dist. marked Colo. 213.2 M., B.T.

A spruce tree 12 ins. dia. bears S. 65° E. 35 lks. dist. marked N.M., 213.2 M., B.T.

A spruce tree 12 ins. dia. bears S. 27½° W. 68 lks. dist. marked N.M., 213.2 M., B.T.

An aspen tree 5 ins. dia. bears N. 57½° W. 41 lks. dist. marked Colo., 213.2 M., B.T.

This cor. stands on N. slope in timber and brush.

Alt. 9950 ft.

Temp. 70°.

Thence along N. slope; descending.

Difference between measurements of 64.00 chs. by 2 sets of chainmen is 14 lks. position of middle point,

By 1st set 64.07 chs.

By 2nd set 63.93 chs.; the mean of which is 64.00 chs.+16.00 chs.=80.00 chs.

9400 ft. 80.00 N. 3 lks.+Correction 198 lks. N.=201 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 214th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 214 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A spruce tree 12 ins. dia. bears N. 37½° E. 42 lks. dist. marked Colo. 214 M., B.T.

An aspen tree 5 ins dia. bears S. 32½° E. 73 lks. dist. marked N.M., 214 M., B.T.
An aspen tree 5 ins. dia. bears S. 42½° W. 54 lks. dist. marked N.M., 214 M., B.T.
A spruce tree 12 ins. dia. bears N. 58½° W. 154 lks. dist. marked Colo., 214 M., B.T.
This cor. stands on N. slope in thick aspen.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, spruce and aspen timber; dense aspen brush.
Alt. 9400 ft.
Temp. 70°.

———

——215th mile——

S. 89° 59′ E. on the tangent to the parallel. Descend.

4.00 Stadia measurement,
Angle 6°+, Rod 13.00 double=2600 ft.×.9891=2571.66 ft.+C.=1.14 ft.=2572.80 ft.=38.98 chs.+4.00 chs.=42.98 chs.

9000 ft. 20.00 N. fork of Vermejo or Canadian River, 20 lks. wide, course SE. in canon about 400 ft. deep; ascend.

42.98 Stadia point, thence by tape measurement; ascend along SW. slope.

9500 ft. 52.00 Top of high spur, slope SW.; descend.

6.00 Bottom of dry gulch, course SW.

67.00 Darling's 117th mile cor., a conglomerate stone 16x10x5 ins. above ground, bears S. 32 chs. dist.
I destroy this cor., and the marks on the bearing trees.
This is the first cor. of Darling's I have been able to find this side of the mountain range.

77.00 Dry gulch, course SW.; ascend.
Difference between measurements of 41.02 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 41.05 chs.

By 2nd set 40.99 chs.; the mean of which is 41.02 chs.+38.98 chs.=80.00 chs.

9300 ft. 80.00 N. 7 lks.+Correction 216 lks. N.=N. 233 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 215th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 215 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

No trees within limits suitable for bearing trees.

Land, mountainous.

Soil, clay and sand, 3rd rate.

Vegetation, oak and aspen brush; scattering spruce and aspen timber.

Alt. 9300 ft.

Temp. 72°.

——216th mile——

S. 89° 58' E. on the tangent to the parallel. Difference between measurements of 23.00 chs. by 2 sets of chainmen is 2 lks. position of middle point,

By 1st set 23.01 chs.

By 2nd set 22.99 chs.; the mean of which is 23.00 chs.

9400 ft. 23.00 Top of ridge bears NE. and SW.; descend.

Stadia measurement from this point,

Angle 9°—, Rod 10.20 double=2040 ft.× .9755=1990.02 ft.+C.=1.13 ft.=1991.15 ft.= 30.17 chs.+23.00 chs.=53.17 chs.

53.17 Stadia point on bench bears NE. and SW.; descend.

Stadia measurement,

Angle 16°+, Rod 9.10 double=1820 ft.× .9240=1681.68 ft.+C.=1.10 ft.=1682.78 ft.= 25.49 chs.+53.17 chs.=78.66 chs.

9000 ft. 60.00 Bottom of canon, stream 15 lks. wide, course SW.

Ascend.

78.66 Stadia point, thence by tape measurement,

9500 ft. 80.00 N. 12 lks. + Correction 234 lks. N. = 246 lks. N. from the tangent,
Set temporary cor.
Adjusted under instructions dated Sept. 9th, 1903.
See page 417.
Land, mountainous.
Soil, rocky, 4th rate.
Vegetation, grass, pine, aspen, willow and sage brush.
Alt. 9500 ft.
Temp. 65°.

——217th mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascend over rocks and through brush.

9650 ft. 3.00 Top of high, rocky ridge, bears N. 70° E. and S. 70° W.
Descend by stadia measurement,
Angle 15°—, Rod 8.50 double = 1700 ft. × .9330 = 1585.10 ft. + C. = 1.11 ft. = 1587.21 ft. = 24.04 chs. + 3.00 chs. = 27.04 chs.

10.00 Foot of rocks, bears NW. and SE.

27.04 Stadia point, thence by tape measurement, along S. slope.
Descend.
Difference between measurement of 52.96 chs. by 2 sets of chainmen is 8 lks. position of middle point,
By 1st set 53.00 chs.
By 2nd set 52.92 chs.; the mean of which is 52.96 chs. + 27.04 chs. = 80.00 chs.

8700 ft. 80.00 N. 19 lks. + Correction 252 lks. = 271 lks. N. from the tangent.
Set temporary cor.
The point located May 7th, 1903.
See page 417.
Land, mountainous.
Soil, sand and clay, 3rd rate.

Vegetation, grass, pine timber; oak and aspen brush.
Alt. 8700 ft.
Temp. 65°.

July 5th, 1903.

Having carefully adjusted the transit in all its parts. At the point for the 217th mile cor. May 8th, 1903, at 4h 27m A. M. l.m.t I observe Polaris at eastern elongation, and mark a point in the line so determined on a plug driven in the ground N. of my station. At 7h A. M. May 8th, 1903, I lay off the azimuth of Polaris 1°30.9′ to the West and mark a point in the true meridian thus determined on a plug driven in the ground N. of my station.
The magnetic bearing of this meridian is N. 13° 30′ W.
This gives the magnetic declination 13° 30′ E.
I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.
In all these observations and the subsequent turning of angles, the mean of four sights was used with the telescope reversed at each sight.

——218th mile——

East on the tangent to the parallel.
Descending in pine timber.

12.00 Leave timber bears NE. and SW.
14.87 Wagon road from Costilla to Trinidad, via San Francisco Pass, bears NE. and SW.
17.65 Stream 3 lks. wide, course SW.
8650 ft. 18.97 N. .2 of a link from the tangent,
Set temporary astronomical monument, See page 418.
The line from this point was run through to the 6th astronomical station, on the 275th mile, where the falling was found to be 18.66

chs. N. of the 37th parallel, as determined by astronomical observations on nights of Oct. 28th, 29th and 30th, 1902. This being outside of the limit of 3" of arc allowed by the Hon. Commissioner the line was adjusted by applying the correction of 24.7 lks. per mile to the south, to bring it within said limit.

26.00 Foot of hill, leave small valley, bears NE. and SW.; ascend.

66.32 On top of spur, slope NE.; ascend along N. slope.

9500 ft. 79.54 Top of ridge bears NE. and SW., about 850 ft. above valley.
Descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point,
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

9490 ft. 80.00 N. .76 of a link,—Correction 18 lks. S.=17.24 lks. S. from the tangent,
Set temporary 218th mile cor.
Land, mountainous.
Soil, rocky, 3rd rate.
Vegetation, pine timber; oak and aspen brush.
Alt. 9490 ft.
Temp. 70°.

July 4th, 1903.

N. B.—This line was corrected when we returned over it from the East, and the corners set on the true line, which accounts for the dates running contrary to the course of the line.

——219th mile——

S. 89° 59′ E. on the tangent to the parallel. Descending through scattering pine timber.

43.00 Stadia point, thence by stadia measurement, Level, Rod 13.00 double=2600 ft.+C.=1.15 ft.=2601.15 ft.=39.41 chs.+43.00 chs.=84.41

chs.—80.00 chs.=2.41 chs. on 220th mile.

9000 ft. 75.00 Stream 3 lks. wide, course S. in ravine about 500 ft. deep; ascend.

80.00 Comes on very steep N. slope in dense brush. I advance this cor.
Land, mountainous.
Soil, clay loam, and rocky, 3rd rate.
Vegetation, pine and pinon timber, oak and aspen brush.

——220th mile——

S. 89° 59′ E. on the tangent to the parallel.

2.41 Stadia point, thence by tape measurement. Ascend steep.

23.50 Top of ridge bears NE. and SW.
Difference between measurements of 64.59 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 64.64 chs.
By 2nd set 64.54 chs.; the mean of which is 64.59 chs. + 39.41 stadia measurement = 104.00 chs.—80.00 chs.=24.00 chs. on 220th mile.

9500 ft. 24.00 N. 4 lks.—Correction of 50. lks. S.=46 lks. S. from the tangent,
Set temporary 219th mile cor. stamped 219.3 M.
Alt. 9500 ft.
Temp. 50°.
Descend.

9100 ft. 65.00 Bottom of dry ravine, course SW.; ascend.

78.20 Timber road, bears NE. and SW.

78.40 Wire fence bears NE. and SW. on low hills, bears NE. and SW.

9300 ft. 80.00 N. 7 lks.—Correction 67 lks. S.=60 lks. South from the tangent,
Set an iron pipe, 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 220th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 220 M. stamped in the center. Raised

a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine tree 12 ins. dia. bears N. 26° E. 168 lks. dist. marked Colo., 220 M., B.T.
An aspen tree 8 ins. dia. bears S. 24¼° E. 48 lks. dist. marked N.M., 220 M., B.T.
A yellow pine tree 16 ins. dia. bears 33½° W. 48 lks. dist. marked N.M., 220 M., B.T.
An aspen tree 8 ins. dia. bears N. 30° W. 87 lks. dist. marked Colo., 220 M., B.T.
This cor. stands on flat where timber has been cut for saw mill.
Land, rolling asd broken.
Soil, clay loam, 3rd rate.
Vegetation, pine and aspen timber; and oak and aspen brush.
Alt. 9300 ft.
Temp. 80°.

——221st mile——

S. 89° 58′ E. on the tangent to the parallel.
Through timber and brush, and over gently rolling ground.

20.00 Top of flat ridge bears NE. and SW.
Descend gradually along N. slope.

25.00 Ruins of old saw-mill in gulch about 10 chs. N.

27.70 Bottom of dry ravine, course SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks., position of middle point,
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is
9050 ft. 80.00 chs.
9050 ft. 80.00 N., 12 lks.—Correction 92 lks. S.—80. lks. South from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 221st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 221 M. stamped in the cen-

ter. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 12 ins. dia. bears S. 74½° E. 223 lks. dist. marked N.M., 221 M., B.T.
A pine tree 16 ins. dia. bears N. 12½° W. 323 lks. dist. marked Colo., 221 M., B.T.
No other trees within limits suitable for bearing trees.

Land, rolling.
Soil, clay loam, 3rd rate.
Vegetation, pine, pinon and aspen timber; and oak and aspen brush.
Alt. 9050 ft.
Temp. 80°.

——222nd mile——

S. 89° 57' E. on the tangent to the parallel.

.10 Road to old saw-mill, bears SE. and NW.; ascend.

8.90 Top of ridge bears NE. and SW. about 100 ft. high.

13.76 Thence by stadia measurement,
Level, Rod 10.16 single=1016 ft.+C.=1.15 ft.=1017.15 ft.=15.41 chs.+13.76 chs.=29.17 chs.

18.00 Dry gulch, course SW. about 100 ft. deep; ascend.

29.17 Stadia point, on spur, slope S.
Angle 2° +, 12.73 Rod, single=1273 ft.× .9988=1271.47 ft.+C.=1.15 ft.=1272.62 ft.=19.28 chs.+48.45 chs.

48.45 Stadia point,
Angle 3° +, Rod 11.00 ft. single=1100 ft.× .9973=1097.03 ft.+C.=1.15 ft.=1098.18 ft.=16.64 chs.+48.45 chs.=65.09 chs.

54.00 Bottom of dry ravine, course SW. about 100 ft. deep.

65.09 Stadia point, thence by tape measurement.

68.00 Top of spur, slope S. 100 ft. above bottom of ravine.

9000 ft. 80.00 Comes in dense aspen timber and brush.

I advance this cor.
Land, rough and broken.
Soil, clay loam, 3rd rate.
Vegetation, pine, pinon and aspen timber; oak and aspen brush.

223rd mile

S. 89° 57' E. on the tangent to the parallel.

15.00 Wagon road from Tercio to Vermejo bears N. and S.

35.00 Leave timber, bears NE. and SW.
Difference between measurements of 68.67 chs. by 2 sets of chainmen is 6 lks. position of middle point.
By 1st set 68.70 chs.
By 2nd set 68.64 chs.; the mean of which is 68.67 chs. + Stadia 51.33 chs. = 120.00 chs. — 80.00 chs. = 40.00 chs. on 223rd mile.

9500 ft. 40.00 N. 23 lks. — Correction 120 lks. S. = 106 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 22nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 22.5 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
East Spanish Peak bears N. 11° 20' E.
Vermejo Peak bears S. 44° 05' W.
A pine tree 18 ins. dia. bears N. 55° W. 166 lks. dist. marked Colo., 222.5 M., B.T.
A pine tree 14 ins. dia. bears N. 16° W. 234 lks. dist. marked Colo., 222.5 M., B.T.
A pine tree 16 ins. dia. bears S. 50¾° E. 428 lks. dist. marked N.M., 222.5 M., B.T.
This cor. stands on top of round hill.
Alt. 9500 ft.
Temp. 82°.
Vegetation, pine, spruce and aspen timber; oak, and aspen brush.

50.00 Enter pine and aspen timber, bears N. and S.

80.00 Comes on steep E. slope, in dense brush.
I advance this cor.
Land, rough and broken.
Soil, clay loam, 3rd rate.
Vegetation, pine, spruce and aspen timber; oak, and aspen brush.

——224th mile——
S. 89° 56′ E. on the tangent to the parallel.
Ascend along steep N. slope.
24.00 Top of high ridge bears SE. and SW.
Difference between measurements of 66.00 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 66.02 chs.
By 2nd set 65.98 chs.; the mean of which is 66.00 chs.—40.00 chs. from last cor. to 80.00 chs. point=26.00 chs. on the 224th mile.
9500 ft. 26.00 N. 30 lks.—Correction 148 lks. S.=118 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 223rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 223.325 M. stamped in the center. Raised a mound of stone 5 ft. high around the post.
Pits impracticable.
A pine tree 16 ins. dia. bears N. 7½° E. 152 lks. dist. marked Colo., 223.325 M., B.T.
A pine tree 14 ins. dia. bears S. 52¼° E. 25 lks. dist. marked N.M., 223.325 M., B.T.
A pine tree 12 ins. dia. bears S. 24½° W. 48 lks. dist. marked N.M., 223.325 M., B.T.
A pine tree 26 ins. dia. bears N. 16½° W. 176 lks. dist. marked Colo., 223.325 M., B.T.
Thence along N. slope in dense timber and brush.
80.00 Comes in dense brush on N. slope.
I advance this cor.; ascend.
Land, rolling and broken.
Soil, clay loam, 3rd rate.

Vegetation, pine, spruce and aspen timber; oak and aspen brush.

——225th mile——

S. 89° 55′ E. on the tangent to the parallel. Ascend along N. slope. Head of ravine about 800 ft. deep, that runs N. to the Purgatory River at Tercio about 5 miles dist. Difference between measurements of 66.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,

By 1st set 66.02 chs.

By 2nd set 65.98 chs.; the mean of which is 66.00 chs.—54.00 chs., the dist. from last cor. to 80.00 chs. point=12.00 chs. on 225th mile.

9450 ft. 12.00 N. 39 lks.—Correction 170 lks. S.=131 lks. S from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 224th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 224.15 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pine tree 30 ins. dia. bears N. 8° E. 50 lks. dist. marked Colo., 224.15 M., B.T.

A pine tree 12 ins. dia. bears S. 18° E. 16 lks. dist. marked N.M., 224.15 M., B.T.

A pinon tree 12 ins. dia. bears S. 45° W. 84 lks. dist. marked N.M., 224.15 M., B.T.

No trees within limits to NW.

This cor. on steep slope near top of ridge. The town of Tercio can be seen from it, about 5 miles to the N.

Alt. 9450 ft.

Temp. 85°.

Ascend.

15.00 Top of ridge bears NE. and S. about 10 chs.; then W.

Thence by stadia measurement,

Angle 4°—, Rod 12.00 ft. double—2400 ft.×

.9951=2388.24 ft.+C.=1.15 ft.=2389.39 ft.=36.20 chs.+15.00 chs.—51.20 chs.

40.00 Head of gulch, course SE.

51.20 Stadia point, thence by tape measurement,

53.00 On spur, slope SE.

Difference between measurements of 31.80 chs. by 2 sets of chainmen is 2 lks., position of middle point,

By 1st set 31.81 chs.

By 2nd set 31.79 chs.; the mean of which is 31.80 chs.+36.20 chs., stadia+12.00 chs.=80.00 chs.

9150 ft. 80.00 N. 49 lks.—Correction 191 lks. S.=142 lks. S. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 225th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 225 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A pine tree 18 ins. dia. bears N. 48½° E. 56 lks. dist. marked Colo., 225 M., B.T.

A pine tree 16 ins. dia. bears S. 70° W. 114 lks. dist. marked N.M., 225 M., B.T.

A pine tree 12 ins. dia. bears N. 0¾° W. 87 lks. dist. marked Colo., 225 M., B.T.

No tree suitable SE.

This cor. stands on W. slope in oak and scattering pine timber

Land, rough and broken.

Soil, clay loam and rocky, 3rd rate.

Vegetation, pine and pinon timber oak and aspen brush.

Alt. 9150 ft.

Temp. 83°.

——226th mile——

S. 89° 55′ E. on the tangent to the parallel.

Over rolling ground.

22.00 Dry gulch, course SE.

40.00 Top of spur, slope SE.; descend along W. slope.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

8900 ft. 80.00 N. 62 lks.—Correction 216 lks. S.—154 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 226th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 226 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 18 ins. dia. bears S. 11° E. 186 lks. dist. marked N.M., 226 M., B.T.
A pine tree 12 ins. dia. bears N. 28° W. 130 lks. dist. marked Colo., 226 M., B.T.
This cor. on steep W slope of Lorencito Canon.
Land, broken.
Soil, clay loam, and rocky, 3rd rate.
Vegetation, pine, pinon and aspen timber; oak and aspen brush.
Alt. 8900 ft.
Temp. 80°.

July 4th, 1903.

I examine the transit and compare the steel tapes with the standard, find all in adjustment and tapes of correct length.

227th mile

July 3rd, 1903.

S. 89° 54′ E. on the tangent to the parallel.
Descend along steep W. slope.

8500 ft. 50.00 Bottom of Lorencito Canon, stream 2 lks. wide, course NE.

56.74 On flat bottom of canon, old saw-mill site.
Stadia measurement from this point,
Angle 8°—Rod° 7.66 double=1532 ft.×
.9806=1502.28 ft.+C.=1.14 ft.=1503.42 ft.=
22.78 chs.+56.74 chs.=79.52 chs.

63.00 Same stream, course SW.; ascend.

79.52 Stadia point, on rocky spur, slope NW.
Difference between measurements of 57.22 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 57.24 chs.
By 2nd set 57.20 chs.; the mean of which is 57.22 chs.+22.78 chs.=80.00 chs.

8700 ft. 80.00 N. 76 lks.—Correction 240 lks. S.=164 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 227th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 227 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine tree 14 ins. dia. bears N. 48° E. 84 lks. dist. marked Colo., 227 M., B.T.
A pine tree 12 ins. dia. bears S. 21° E. 105 lks. dist. marked N.M., 227 M., B.T.
A spruce tree 14 ins. dia. bears S. 54¾° W. 77 lks. dist. marked N.M., 227 M., B.T.
A spruce tree 14 ins. dia. bears N. 43½° W. 81 lks. dist. marked Colo., 227 M., B.T.
Land, broken and rocky.
Soil, sandy and rocky, 3rd rate.
Vegetation, pine, spruce and aspen timber; oak, aspen and willow brush.
Alt. 8700 ft.
Temp. 79°.

——228th mile——

S. 89° 53′ E. on the tangent to the parallel.
Descend.

2.50 Dry ravine, 50 ft. deep, course SE.; ascend.

17.00 Top of spur, slope SE.; descend along south slope.

8400 ft. 75.41 Top of spur, slope SE.
Thence by stadia measurement,
Level, Rod 9.38 double = 1876 ft. + C. = 1.15 ft. = 1877.15 ft. = 28.44 chs. + 75.41 chs. = 103.85 chs. — 80.00 chs. = 23.85 chs. on the 229th mile.

80.00 Comes on rough, brushy slope of canon.
I advance this cor.
Land, rough and broken.
Soil, rocky, 3rd rate.
Vegetation, pine, spruce and aspen timber. Oak and aspen brush.

—229th mile—

S. 89° 53′ E. on the tangent to the parallel.
Descend.

14.00 Bottom of dry canon, about 300 ft. deep, course S.; ascend.

23.85 Stadia point,
Difference between measurements of 75.56 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 75.59 chs.
By 2nd set 75.53 chs.; the mean of which is 75.56 chs. + stadia 28.44 chs. = 104.00 chs. — 80.00 chs. = 24.00 chs. on 229th mile.

8550 ft. 24.00 N. 96 lks. — Correction 272 lks. S. = 176 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 228th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 228.3 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 4 ins. dia. bears N. 34½° E. 93 lks. dist. marked Colo., 228.3 M., B.T.
A pine tree 10 ins. dia. bears S 85° E. 78 lks. dist. marked N.M., 228.3 M., B.T.

A pine tree 7 ins. dia. bears N. 33 W. 81 lks. dist. marked Colo., 228.3 M., B.T.
No other tree within limits.
Land, rough and broken.
Soil, rocky, 3rd rate.
Vegetation, pine, pinon and cedar timber; oak and aspen brush.
Alt. 8550 ft.
Temp. 82°.
This cor. stands on south slope, rocky point of spur, about 300 ft. above bottom of Lorencito Canon.

49.00 On spur, slope S., stadia measurement from this point,
Angle 2° +, Rod 12.00 ft., double =2400 ft. × .9988=2397.12 ft.+C.=1.15 ft.=2398.27 ft.=36.33 chs.+49.00 chs.=85.33 chs.—80.00 chs =5.33 chs. on 230th mile.

60.00 Dry rocky canon, course S.; accept.

80.00 Comes on steep W. slope.
I advance this cor.
Land, rough, broken and rocky.
Soil, 3rd rate, rocky.
Vegetation, pine, pinon and cedar timber; oak and aspen brush.

——230th mile——

S. 89° 52′ E. on the tangent to the parallel.

5.33 Stadia point.
Difference between measurements of 25.67 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 25.68 chs.
By 2nd set 25.66 chs.; the mean of which is 25.67 chs.+stadia 36.33 chs.=62.00 chs.—56.00 chs. (Dist. from last cor to 80.00 chs. point)=6.00 chs on 230th mile.

8550 ft. 6.00 N. 111 lks.—Correction 292 lks. S.=181 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 229th mile cor. A brass cap on the top of

the pipe has raised letters Colo. on N., N.M. on S. and 229.075 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 18 ins. dia. bears N. 30½° E. 46 lks. dist. marked Colo., 229.075 M., B.T.
A pine tree 8 ins. dia. bears S. 22½° E. 47 lks. dist. marked N.M., 229.075 M., B.T.
A pine tree 5 ins. dia. bears S. 44½° W. 108 lks. dist. marked N.M., 229.075 M., B.T.
A pine tree 18 ins dia. bears N. 36° W. 67 lks. dist. marked Colo., 229.075 M., B.T.
East Spanish Peak bears N. 2° W.
Alt. 8550 ft.
Temp. 86°.

7.00 Top of ridge bears NE. and SW.
Stadia measurement from this point,
Angle 5° —, Rod 13.00 ft. double=2600 ft.× .9924=2580.28 ft.+C.=1.14 ft.=2581.42 ft.=39.11 chs.+7.00 chs.=46.11 chs.

46.11 Stadia point in hollow, sloping N.; ascend.

75.00 Top of ridge bears NE. and SW.
Descend gradually, along SE. slope.
Difference between measurements of 34.89 chs. by 2 sets of chainmen is 2 lks., position of middle point
By 1st set 34.90 chs.
By 2nd set 34.88 chs.; the mean of which is 34.89 chs.+39.11 chs., stadia=74.00 chs. from the last cor+6.00 chs.=80.00 chs.

8375 ft. 80.00 N. 129 lks.—Correction 314 lks. S.=185 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 6 ins. in the ground to bed rock for 230th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 230 M. stamped in the center. Raised a mound of stone 6 ft. base 2½ ft. high around the post. Pits impracticable.
A pine tree 18 ins. dia. bears N. 20¼° E. 133 lks. dist. marked Colo., 230 M., B.T.

A pine tree 10 ins. dia. bears S. 78½° E. 114 lks. dist. marked N.M., 230 M., B.T.
A pine tree 16 ins. dia. bears S. 69¾° W. 118 lks. dist. marked N.M., 230 M., B.T.
A pine tree 16 ins. dia. bears N. 42½° W. 100 lks. dist. marked Colo., 230 M., B.T.
Land, broken and rough.
Soil, rocky, clay loam, 3rd rate.
Vegetation, pine and aspen timber; oak and aspen brush.
Alt. 8375 ft.
Temp. 86°.

——231st mile——

S. 89° 52' E. on the tangent to the parallel.

12.00 Thence by stadia measurement,
Angle 2°—, Rod 12.95 ft. double=2590 ft.×.9988=2586.89 ft.+C. 1.15 ft.=2588.04 ft.=39.21 chs.+12.00 chs.=51.21 chs.

47.00 Head of rocky canon about 200 ft. deep, course S.

51.21 Stadia point, on rocky bluff, bears N. and S.
Thence by tape across flat spur.

58.50 On E. edge of rocky spur, bears NW. and SE.
Stadia from this point; descend.
Angle 11°—, Rod 6.60 ft. double=1320 ft.×.9636=1271.95 ft.+C.=1.13 ft.=1273.08 ft.=19.29 chs.+58.50 chs.=77.79 chs.

74.00 Bottom of dry ravine, course SE.; 350 ft. deep, below last stadia point; ascend.

77.79 Stadia point, on low spur, slope S.
Thence by tape, along brushy south slope.
Difference between measurements of 21.50 chs. by 2 sets of chainmen is 2 lks. position of middle point,
By 1st set 21.51 chs.
By 2nd set 21.49 chs.; the mean of which is 21.50 chs.+58.50 chs., stadia=80.00 chs.

7950 ft. 80.00 N. 150 lks.—Correction 339 lks. S.=189 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

Ranges at the bottom 2 ft. in the ground for 231st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 231 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 16 ins. dia. bears N. 7° E. 129 lks. dist. marked Colo. 231 M., B.T.
A pine tree 12 ins. dia. bears S. 76½° E. 211 lks. dist. marked N.M., 231 M., B.T.
A pine tree 14 ins. dia. bears N. 52° W. 243 lks. dist. marked Colo., 231 M., B.T.
No tree within limit SW.
This cor. in oak brush on S. slope about 4 chs. N. of Lorencito creek.
Land, rough and broken.
Soil, rocky, clay loam, 3rd rate.
Vegetation, pine, cedar and aspen timber.
Oak and aspen brush.
Alt. 7950 ft.
Temp. 85°.

232nd mile—

S. 89° 51' E. on the tangent to the parallel.
Descend along brushy south slope.

7450 ft.	30.00	Bottom of Lorencito Canon, water in holes in bend, course SW. to SE.
	40.00	Low point of spur, slope S.
	54.00	Same stream, course NE.
		Ascend along N. slope.
7550 ft.	76.00	Top of spur, slope N.; descend.
	79.00	Bottom of ravine from S.; road bears N. and S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point,
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs.
7450 ft.	80.00	N. 172 lks.—Correction 264 lks. S.=192 lks. S. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 232nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 232 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high, around the post. Pits impracticable.

A pine tree 16 ins. dia. bears N. 4¾° W. 480 lks. dist. marked Colo., 232 M., B.T.

A pine tree 8 ins. dia. bears S. 41½° W. 423 lks. dist. marked N.M., 232 M., B.T.

No other trees within limits.

This cor. stands in mouth of canon from the S.

Ruins of old lumber camp in main canon about 10 chs. N.

Land, rough and broken.

Soil, rocky, clay and sand, 3rd rate.

Vegetation, pine, cedar and aspen timber; oak and aspen brush.

On the afternoon of May 12th, 1903, I adjust the transit in all its parts.

At the point for the 232nd mile cor., at 4h 8m A. M. l.m.t. I observe Polaris at eastern elongation, May 13th, 1903, and mark a point in the line so found on a plug driven in the ground N. of my station.

At 7h A. M. May 13th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian thus determined on a plug driven in the ground N. of my station.

The magnetic bearing of this meridian is N. 13° 30′ W.

This gives magnetic variation 13° 30′ E.

I now lay off an angle 90° from the meridian from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights

was taken, with the telescope reversed at each sight.

N. B.—These observations on Polaris for meridian were taken and tangent cut out through timber and brush, before the corrections and subsequent adjustment of line was made, hence the difference in date.

—233rd mile—

East on the tangent to the parallel.

	1.00	Stream 2 lks. wide in bottom of ravine, course NE. about 10 chs. to where it joins the Lorencito canon; ascend.
	10.00	Top of spur about 50 ft. high, slope N.
	23.00	Dry gulch, course N.
	37.13	On spur, slope N., stadia measurement, Angle 4 +, Rod 12.40 single=1240 ft. .9951=1233.92 ft.+C.=1.15 ft.=1235.07 ft. 18.71 chs.+37.13 chs.=55.84 chs.
7650 ft.	55.84	Stadia point on high spur, slope NE. Angle 3 —, Rod 8.30 ft. double=1660 ft. .9973=1655.52 ft.+C.=1.15 ft.=1656.67 ft. 25.10 chs.+55.84 chs.=80.94 chs.—.94 chs. 80.00 chs.
	73.00	Wagon road in canon, bears N. and S
7450 ft.	76.00	Stream 3 lks. wide in bottom of canon, course N. about ¼ mile to Lorencito Canon, which there turns to NE.
	78.00	Foot of hill bears N. and S.; ascend.
7550 ft.	80.00	N. .76 of link—Correction 388 lks. S.=387.24 lks. S. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 233rd mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 233 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable A cedar tree 12 ins. dia. bears N. 9 W 24 lks. dist. marked Colo., 233 M., B.T. A pine tree 14 ins. dia. bears S. 100 lks. dist. marked N.M., 233 M., B.T.

No other trees within limit.
Land, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, pine, cedar and aspen timber
Oak and aspen brush.
Alt. 7550 ft.
Temp. 84°.

234th mile.

S. 89° 59' E. on the tangent to the parallel
Ascend in dense oak brush.

6.00 Top of spur, slope SW. 200 ft. above gulch.
Thence along S. slope in dense brush.

7600 ft. 34.00 Bottom of dry ravine, course SW., ascend

7900 ft. 70.00 Top of spur, slope N., thence along N. slope
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point,
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is 80.00 chs.

7950 ft. 80.00 N. 3 lks. Correction 413 lks. S. 410 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 234th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 234 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 8 ins. dia. bears N. 73° E. 1.5 lks. dist. marked Colo., 234 M., B.T.
A pine tree 18 ins. dia. bears S. 29½° E. 2.36 lks. dist. marked N.M., 234 M., B.T.
A pine tree 16 ins. dia. bears N. 35½° W. 42 lks. dist. marked Colo., 234 M., B.T.
No trees SW. within limit suitable for bearing trees.
This cor. stands near head of dry ravine course N.
Land, rough and broken.

Soil, rocky, clay loam, 3rd rate.
Vegetation, pine and spruce timber; oak aspen and locust brush.
Alt. 7950 ft.
Temp. 80

July 3rd, 1903.

I examine the adjustments of the transit and compare the steel tapes with the standard and find all correct and in adjustment

July 2nd, 1903

235th mile

S. 89 30 E. on the tangent to the parallel
Along N. slope, near top of ridge.
50.00 Dry canon near the head, course N.
64.24 Wagon road bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.
8200 ft. 80.00 N. 7 lks. Correction 438 lks. S. 431 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 235th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M on S. and 235 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This cor. stands on stony point on top of high ridge that bears SE. and SW.
A pine tree 7 ins. dia. bears N. 58½ E. 29 lks. dist. marked Colo., 235 M., B.T.
A pine tree 10 ins. dia. bears S. 34½ E. 70 lks. dist. marked N.M., 235 M., B.T.
A pine tree 8 ins. dia. bears S. 31½ W. 20 lks. dist. marked N.M., 235 M., B T

A pine tree 8 ins. dia. bears N. 61½ W. 22 lks. dist. marked Colo., 235 M., B.T.
Land, rough and broken.
Soil, rocky, clay loam; 3rd rate.
Vegetation, pine, spruce and aspen timber; oak, aspen and locust brush.
Much of the timber has been cut for rail road ties, and mining timbers.
Alt. 8200 ft.
Temp. 83°.

236th mile

S. 89° 58' E. on the tangent to the parallel. Descending along N. slope.

9.50 On spur, slope N.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point.
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

8025 ft. 80.00 N. 12 lks. Correction 463 lks. S.= 451 S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 236th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 236 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 24 ins. dia. bears N. 9½ E. 336 lks. dist. marked Colo., 236 M., B.T.
A pine tree 10 ins. dia. bears S. 66½ E. 242 lks. dist. marked N.M., 236 M., B.T.
A pine tree 16 ins. dia. bears N. 12½ W. 296 lks. dist. marked Colo., 236 M., B.T.
No tree SW. within limit.
This cor. stands on ridge at low point, bears N. and S.
Land, rough and broken.
Soil, sand and clay, 3rd rate.

Vegetation, pine, spruce and aspen timber; oak, aspen and locust brush.
Alt. 8025 ft.
Temp. 84°.

237th mile

S. 89° 57' E. on the tangent to the parallel.

9.00 Thence by stadia measurement,
Angle 3° —, Rod 11.10 ft. single=1110 ft.+ 9973=1107.00 ft.+C. -1.15 ft.=1108.15 ft.= 16.79 chs.+9.00 chs.=25.79 chs.

20.00 Bottom dry ravine, course NE.

25.79 Top of spur, slope N.
Angle 00° Rod 10.00 ft. single=1000 ft.+C. -1.15 ft.=1001.15 ft.=15.17 chs.+25.79 chs. =40.96 chs.

38.00 Bottom same ravine, 150 ft. deep, course SE.

40.96 Stadia point, on ridge bears NW. and SE. Descend.

7800 ft. 80.00 Comes in ravine about 150 ft. deep, course N.
I advance this cor.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, pine, spruce and aspen timber; oak, aspen and locust brush.

238th mile

S. 89° 57' E. on the tangent to the parallel.
Ascend through timber and brush.
Difference between measurements of 56.04 chs. by 2 sets of chainmen is 4 lks., position of middle point.
By 1st set 56.06 chs.
By 2nd set 56.02 chs.; the mean of which is 56.04 chs.+31.96 chs., stadia=88.00 chs.— 80.00 chs.=8 chs. on the 238th mile.

7950 ft. 8.00 N. 20 lks.—Correction 489 lks. S.=469 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for

237th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. N.M. on S. and 237.1 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 16 ins. dia. bears N. 24° E. 82 lks. dist. marked Colo., 237.1 M., B.T.
A pine tree 8 ins. dia. bears S. 54° E. 58 lks. dist. marked N.M., 237.1 M., B.T.
A pine tree 10 ins. dia. bears S. 33¾° W. 87 lks. dist. marked N.M., 237.1 M., B.T.
A pine tree 8 ins. dia. bears N. 11° W. 57 lks. dist. marked Colo., 237.1 M., B.T.
Alt. 7950 ft.
Temp. 84°.
Ascend.

13.00 Top of spur, slope N.
Thence by stadia measurement,
Angle 2° + Rod 11.50 double = 2300 ft. × .9988 = 2297.24 ft. + C. = 1.15 ft. = 2298.39 ft. = 34.82 chs. + 13.00 chs. = 47.82 chs.

18.00 Bottom dry ravine, 150 ft. deep, course N.

23.00 Top of spur, slope N

33.00 Bottom dry ravine 200 ft. deep, course NW.
Mexican cabin and water hole, about 20 chs. NW.
Ascend.

47.82 On high spur, slope N., thence by tape measurement, along N. slope.

70.00 Top of ridge bears NE. and SW.
Difference between measurements of 37.18 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 37.19 chs.
By 2nd set 37.17 chs.; the mean of which is 37.18 chs. + 34.82 chs., stadia = 72.00 chs. from last cor. + 8.00 chs. = 80.00 chs.

7930 ft. 80.00 N. 27 lks.—Correction 512 lks. S. = 485 lks. S from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for the 238th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S., and 238 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 16 ins. dia. bears N. 54° E. 87 lks. dist. marked Colo., 238 M., B.T.
A pine tree 16 ins. dia. bears S. 44° E. 111 lks. dist. marked N.M., 238 M., B.T.
A pine tree 24 ins. dia. bears S. 42° W. 7 lks. dist. marked N.M., 238 M., B.T.
A pine tree 24 ins. dia. bears N. 80° W. 122 lks. dist. marked Colo., 238 M., B.T.
Land, rough and broken.
Soil, sandy loam, 3rd rate.
Vegetation, pine, spruce and aspen timber; oak, aspen and locust brush.
Alt. 7930 ft.
Temp. 84°.

—239th mile—

S. 89° 56' E. on the tangent to the parallel.

5.00 Dry gulch, course SE.; ascend.
16.00 Top of ridge bears NW. and SE.; descend.
45.00 Bottom of ravine, course NE.; ascend.
7900 ft. 76.00 Top of spur, slope NE.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks., position of middle point,
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is 80.00 chs.
7720 ft. 80.00 N. 37 lks.—Correction 537 lks. S.=500 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 239th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 239th mile stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 14 ins. dia. bears N. 51° E. 143 lks. dist. marked Colo., 239 M. B.T.
A pine tree 30 ins. dia. bears S. 63° E. 41 lks. dist. marked N.M., 239 M., B.T.
A pine tree 10 ins. dia. bears S. 35¾° W. 17 lks. dist. marked N.M., 239 M., B.T.
A pine tree 12 ins. dia. bears N. 27° W. 126 lks. dist. marked Colo., 239 M., B.T.
Land, rolling and broken.
Soil, rocky, 3rd rate.
Vegetation, pine, spruce and aspen timber; locust, oak and aspen brush.
Alt. 7720 ft.
Temp. 84°.

——240th mile——

S. 89° 55' E. on the tangent to the parallel. Descend.

8.00 Stadia measurement from here,
Angle 5°—, Rod 11.10 ft. double=2200 ft. × .9924=2203.13 ft.+C.=1.14 ft.=2204.27 ft.=33.39 chs.+8.00 chs.=41.39 chs.

7420 ft. 34.00 Bottom of ravine about 300 ft. below cor., stream 3 lks. wide, course SE. Mexican houses just north of line.

34.50 Wagon road bears NW. and SE.; ascend.

41.39 Stadia point, thence by tape measurement.

7600 ft. 48.00 Top of spur slope S.; descend along S. slope.

80.00 Comes on steep hillside.
I advance this cor.
Land, rough and broken.
Soil, sandy loam, 3rd rate.
Vegetation, scattering pine and cedar timber; oak, aspen and locust brush.

——241st mile——

S. 89° 55' E. on the tangent to the parallel.

7380 ft. 5.00 Bottom of canon, stream 3 lks. wide, course NE.

	5.50	Wagon road, bears NE. and SW.; ascend.
7450 ft.	20.00	Top of spur, slope NE.; descend.
		Difference between measurements of 72.61 chs. by 2 sets of chainmen is 6 lks., position of middle point.
		By 1st set 72.64 chs.
		By 2nd set 72.78 chs.; the mean of which is 72.61 chs.+33.39 chs., stadia 106.00 chs.-80.00 chs.=26.00 chs. on 241 st mile.
7430 ft.	26.00	N. 53 lks—Correction 568 lks. S.—515 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 240th mile cor. A brass cap on the top of the pipe has raised letters Colo., on N., N.M. on S. and 240.325 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 8 ins. dia. bears N. 42° W. 189 lks. dist. marked Colo., 240.325 M., B.T.
		A pine tree 14 ins. dia. bears N. 4° 51' W. 529 lks. dist. marked Colo., 240.325 M., B.T.
		No other trees suitable for bearing trees.
		Alt. 7430 ft.
		Temp. 84°.
		Descend.
7380 ft.	32.00	Bottom of Long Canon. Wagon road bears N. and S.
	35.50	R.R. track for timber, Trinidad to Catskill, bears NE. and SW.
	37.00	Stream 10 lks. wide, bottom of Long Canon, course NW.
		Ascend.
	42.00	Top of spur, slope N.; descend.
	55.00	Bottom of ravine, stream 2 lks. wide, gours. V.
		Ascend steep S. slope.
7700 ft.	75.00	Top of steep, brushy spur, slope S.; descend.
		Difference between measurements of 54.00

chs. by 2 sets of chainmen is 4 lks., position of middle point.
By 1st set 54.02 chs.
By 2nd set 53.98 chs.; the mean of which is 54.00 chs. =26.00 chs. =80.00 chs.

7650 ft. 80.00 N. 62 lks.—Correction 586 lks. S.=524 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 241st mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 241 M. stamped in the center: Raised a mound of stone 5 ft. base 2 ft. high around the post Pits impracticable.
A pine tree 14 ins. dia. bears S. 35½ E. 232 lks. dist. marked N.M., 241 M., B.T.
No other trees within limit.
This cor. stands in dense oak brush on south slope.
Land, rough and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, scattering pine timber; oak and locust brush.
Alt. 7650 ft.
Temp. 83.

——242nd mile——

S. 89° 54' E. on the tangent to the parallel. Descend.

7550 ft. 10.00 Dry ravine, course S.; ascend.

7900 ft. 40.00 Top of high ridge, bears NE. and NW.
Thence along S. slope near top of ridge.

78.00 Top of spur, slope S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point.
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is 80.00 chs.

7950 ft. 80.00 N. 76 lks.—Correction 611 lks. S.=535 lks. S. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 242nd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on E., N.M. on S. and 242 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 8 ins. dia. bears N. 33° E. 131 lks. dist. marked Colo., 242 M., B.T.
A pine tree 16 ins. dia. bears S. 36½° E. 68 lks. dist. marked N.M., 242 M., B.T.
A pine tree 20 ins. dia. bears S. 66° W. 32 lks. dist. marked N.M., 242 M., B.T.
A pine tree 20 ins. dia. bears N. 52° W. 117 lks. dist. marked Colo., 242 M., B.T.
Land, rough and broken.
Soil, rocky, 3rd rate.
Vegetation, pine and spruce timber.
Oak and locust brush.
Alt. 7950 ft.
Temp. 80°.

——243rd mile——

S. 89° 53′ E. on the tangent to the parallel.
Along south slope.

8000 ft.	22.50	On top of ridge bears N. and S.
		Thence by stadia
		Angle 2°—, Rod 7.90 double=1580 ft.×.9988 =1578.10 ft.+C.=1.15 ft.=1579.25 ft.= 23.93 chs.+22.50 chs.=46.43 chs.
	27.00	Head of canon, course NE.
	34.00	Top of spur, slope N.
	43.00	Bottom of ravine, 150 ft. deep, course N.; ascend.
	46.43	Stadia point on spur, slope N.
		Angle 00° Rod 10.00 ft. double=2000 ft.+ C.=1.15 ft.=2001.15 ft.=30.32 chs.+46.43 chs.=76.75 chs.
7800 ft.	63.00	Bottom of canon 200 ft. deep, course N.; ascend.

76.75 Stadia point on spur, slope N.
Thence by tape measurement,
8050 ft. 80.00 N. 92 lks.—Correction 635 lks. S. 543 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 243rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 243 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 12 ins. dia. bears N. 40° E. 14 lks. dist. marked Colo., 243 M., B.T.
A pine tree 8 ins. dia. bears S. 33° E. 24 lks. dist. marked N.M., 243 M., B.T.
A pine tree 8 ins. dia. bears S. 41° W. 107 lks. dist. marked N.M., 243 M., B.T.
A pine tree 16 ins. dia. bears N. 21° 30' W. 30 lks. dist. marked Colo., 243 M., B.T.
Land, rough and broken.
Soil, rocky and sandy, 3 rd rate.
Vegetation, pine, spruce and cedar timber; oak, aspen and locust brush.
Alt. 8050 ft.
Temp. 75°.

July 2nd, 1903

I examine the adjustments of the transit and compare the steel tapes with the standard. Find all correct and in adjustment.

July 1st, 1903.

244th mile

S. 89° 53' E. on the tangent to the parallel.
14.00 Bottom of dry ravine 150 ft. deep, course N.
25.00 Top of spur, slope N.
57.00 Stadia measurement from this point,
Angle 00° Rod 12.30 double = 2460 ft. + C. = 1.15 ft. = 2461.15 ft. = 37.29 chs. + 57.00 chs. = 94.29 chs. — 80.00 chs. = 14.29 chs. on the 245th mile.

7850 ft.	80.00	Comes in canon, course N. about 200 ft. deep. I advance this cor. Land, rough and broken. Soil, sand and clay, 3rd rate. Vegetation, pine, cedar and aspen timber. Oak, aspen and locust brush.

245th mile

		S. 89° 52′ E. on the tangent to the parallel. Ascend.
	14.29	Stadia point on sharp spur, slope E. Difference between measurements of 57.41 chs. by 2 sets of chainmen is 4 lks., position of middle point By 1st set 57.43 chs. By 2nd set 57.39 chs.; the mean of which is 57.41 chs.+37.29 chs., stadia=94.70 chs.—80.00 chs.=14.70 chs. on the 245th mile.
8050 ft.	14.70	N. 114 lks.—Correction 660 lks. S.=546 lks. S. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 244th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. N.M. on S. and 244,184 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. No trees suitable for bearing trees. East one of Spanish Peaks bears N. 30° 15′ W. NW. face of Fishers' Peak bears N. 54½° E. Alt. 8050 ft. Temp. 70°. Thence by stadia measurement, Angle 7′—Rod 8.50 ft. double=1700 ft.×.9851=1674.67 ft.+C.=1.14 ft.=1675.81 ft.=25.39 chs.+14.70 chs.=40.09 chs.
7900 ft.	30.00	Bottom of ravine about 250 ft. deep, stream 2 lks. wide, course N.; ascend.

7950 ft.	40.09	Stadia point on spur, slope N.; coal cropping, and spring about 2 chs. N.
		Angle 8° + Rod 11.00 ft. double=22.00 ft.× .9806=2157.32 ft.+C.=1.14 ft.=2158.46 ft.= 32.70 chs.+40.09 chs.=72.79 chs.
7900 ft.	45.00	Bottom of ravine stream 2 lks. wide, course NW.
		Ascend.
	72.79	Stadia point, thence by tape measurement.
8150 ft.	80.00	N. 129 lks.—Correction 685 lks. S.=556 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 245th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 245 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pinon tree 8 ins. dia. bears S. 67° W. 38 lks. dist. marked N.M., 245 M., B.T.
		A pinon tree 8 ins. dia. bears N. 15° W. 53 lks. dist. marked Colo., 245 M., B.T.
		No other trees suitable for bearing trees.
		This cor. stands on steep south slope, in brush.
		Land, rough and broken.
		Soil, sandy loam, 3rd rate.
		Vegetation, pine, pinon and cedar timber; oak, aspen and locust brush.
		Alt. 8150 ft.
		Temp. 83°.

——246th mile——

S. 89° 52′ E. on the tangent to the parallel.

Descend.

Stadia measurement,

Angle 2° +, Rod 12.00 ft. double=2400 ft.× .9988+2397.12 ft.+C.=1.15 ft =2398.27 ft.= 36.33 chs.

	12.00	Head of ravine, course SE.; ascend.
8200 ft.	36.33	On ridge bears NW. and SE.

Thence by tape measurement.
Descend.

7800 ft. 80.00 Bottom of dry ravine, about 300 ft. deep, course NW.
I advance this cor.
Land, rough and broken.
Soil, sandy loam, 3rd rate.
Vegetation, pine, pinon and cedar timber.
Oak, aspen and locust brush.

——247th mile——

S. 89° 51′ E. on the tangent to the parallel.
Ascend.

13.00 On spur, lsope S.; thence along S slope.
Difference between measurements of 63.67 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 63.70 chs.
By 2nd set 63.64 chs.; the mean of which is 63.67 chs.+36.33 chs. stadia=100.00 chs.—80.00 chs.=20.00 chs., on 247th mile.

8000 ft. 20.00 N. 155 lks.—Correction 716 lks. S.=561 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 246th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 246.25 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 18 ins. dia. bears N. 42½° E. 19 lks. dist. marked Colo., 246.25 M., B.T.
A pine tree 16 ins. dia. bears S. 49° E. 85 lks. dist. marked N.M., 246.25 M., B.T.
A pine tree 17 ins. dia. bears S. 81° W. 96 lks. dist. marked N.M., 246.25 M., B.T.
A pine tree 19 ins. dia. bears N. 27½° W. 92 lks. dist. marked Colo., 246.25 M., B.T.

8100 ft. 27.00 Top of ridge bears NW. and SE.
Descend along N. slope.

60.00 Head of ravine, course N.; ascend.

80.00 Comes in dense brush.

I advance this cor.
Land, rough and broken.
Soil, sandy loam, 3rd rate.
Vegetation, pine and cedar timber; oak, aspen and locust brush.

——248th mile——

S. 89° 50' E. on the tangent to the parallel. Ascend.

8100 ft.	10.00	Top of ridge bears N. and S.; descend.
7950 ft.	25.00	Bottom of ravine, course NE. Wagon road and telephone line bears NE. and SW. Trinidad to Raton.
	25.30	Stream 2 lks. wide, course NE.; ascend.
	30.00	Top of spur, slope N., 50 ft. high; descend.
	35.00	Dry gulch, course N.; ascend.
	43.50	Top of spur, slope N.

Difference between measurements of 104.00 chs. by 2 sets of chainmen is 10 lks. position of middle point,
By 1st set 104.50 chs.
By 2nd set 103.95 chs.; the mean of which is 104.00 chs.; from last cor. +20.00 chs.= 124.00 chs. —80.00 chs. —44.00 chs. on 248th mile.

8100 ft.	44.00	N. 185 lks. Correction 747 lks. S. —562 lks. S. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 247th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 247.55 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.
A pine tree 14 ins. dia. bears N. 50½° E. 87 lks. dist. marked Colo., 247.55 M., B.T.
A pine tree 14 ins. dia. bears S. 58° E. 59 lks. dist. marked N.M., 247.55 M., B.T.
A pine tree 16 ins. dia. bears S. 36¾° W. 32 lks. dist. marked NM., 247.55 M., B.T.
A pine tree 12 ins. dia. bears N. 31° W. 86 lks. dist. marked Colo., 247.55 M. B.T.

Descend.

55.00 Bottom of ravine, 150 ft. deep, course N.; ascend.

80.00 Comes in dense brush.
I advance this cor.
Land, rough and broken.
Soil, rocky and sandy loam, 3rd rate.
Vegetation, pine and spruce timber.
Oak and aspen and locust brush.

249th mile

S. 89° 50' E. on the tangent to the parallel.
Over ravines and spurs, drainage N.

20.00 Bottom of ravine 100 ft. deep, course N.
Difference between measurements of 62.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 62.02 chs.
By 2nd set 61.98 chs.; the mean of which is 62.00 chs., from last cor. +44.00 chs.=106.00 chs.—80.00 chs.=26.00 chs. on the 249th mile.

8050 ft. 26.00 N. 203 lks.—Correction 766 lks. S.=563 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 248th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 248.325 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 16 ins. dia. bears N. 47° E. 43 lks. dist. marked Colo., 248.325 M., B.T.
A pine tree 18 ins. dia. bears S. 50° E. 24 lks. dist. marked N.M., 248.325 M., B.T.
A pine tree 18 ins. dia. bears S. 40° W. 55 lks. dist. marked N.M., 248.325 M., B.T.
A pine tree 16 ins. dia. bears N. 35½° W. 58 lks. dist. marked Colo., 248.325 M., B.T.
Alt. 8050 ft.
Temp. 84°.

Thence across spurs and gulches.
Drainage to the north.

80.00 Comes in dense brush.
I advance this cor.
Land, rough and broken.
Soil, sandy and stony, 3rd rate.
Vegetation, pine, spruce and cedar timber; oak, aspen and locust brush.

——250th mile——

S. 89° 49′ E. on the tangent to the parallel.
Along N. slope, crossing gulches.

17.00 Bottom of ravine, about 200 ft. deep, course N. about 10 chs., then NW.; ascend.

8470 ft. 41.00 Top of high ridge bears N. and S.; descend.
Difference between measurements of 98.00 chs. by 2 sets of chainmen is 14 lks., position of middle point.
By 1st set 98.07 chs.
By 2nd set 97.93 chs.; the mean of which is 98.00 chs., from the last cor.+26.00 chs.=124.00 chs.—80.00 chs.=44.00 chs. on the 250th mile.

8450 ft. 44.00 N. 235 lks.—Correction 796 lks. S.=561 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 249th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. N.M. on S. and 249.55 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 12 ins. dia. bears N. 36° E. 4 lks. dist. marked Colo., 249.55 M., B.T.
A pine tree 8 ins. dia. bears S. 76° E. lks. dist. marked N.M., 249.55 M., B.T.
A pine tree 14 ins. dia. bears S. 36¾° W. 133 lks. dist. marked N.M., 249.55 M., B.T.
A pine tree 12 ins. dia. bears N. 53¼° W. lks. dist. marked Colo., 249.55 M., B.T.

Alt. 8450 ft.
Temp. 84°.
Thence along S. slope.
60.00 Head of ravine, course SE.
80.00 Comes in gulch, course SE., in dense brush.
I advance this cor.
Land, rough and broken.
Soil, rocky and sandy.

251st mile

S. 89° 48′ E. on the tangent to the parallel.
Ascend along S. slope.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point.
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs., from last cor. +44.00 chs.=124.00 chs.—80.00 chs.=44.00 chs. on 251st mile.
8150 ft. 44.00 N. 262 lks.—Correction 821 lks. S.=559 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 250th mile cor. A brass cap on the top of the pipe has raised letters Colo., on N., N.M. on S., and 250.55 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 18 ins. dia. bears N. 7½° E. 60 lks. dist. marked Colo., 250.55 M., B.T.
A pine tree 16 ins. dia. bears S. 22° E. 31 lks. dist. marked N.M., 250.55 M., B.T.
A pine tree 16 ins. dia. bears S. 48½° W. 52 lks. dist. marked N.M., 250.55 M., B.T.
A pine tree 18 ins. dia. bears N. 78° W. 25 lks. dist. marked Colo., 250.55 M., B.T.
This cor. on S. slope, near top of divide.
Alt. 8150 ft.
Temp. 82°.
Ascend.

8200 ft.	52.00	Top of divide, bears NW. and SE.; ascend.
	80.00	Comes in ravine, 150 ft. deep, course NE.
		I advance this cor.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, pine, spruce and aspen timber.
		Oak, aspen and locust brush.

——252nd mile——

S. 89° 48′ E. on the tangent to the parallel.
Ascend.

	15.00	On spur, slope N.; descend.
		Difference between measurements of 69.61 chs. by 2 sets of chainmen is 6 lks., position of middle point,
		By 1st set 69.64 chs.
		By 2nd set 69.58 chs.; the mean of which is 69.61 chs., dist. from last cor. +44.00 chs.= 113.61 chs.—80.00 chs.=33.61 chs. on 252nd mile.
7800 ft.	33.61	N. 287 lks.—Correction 843 lks. S.=556 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 251st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 251.42 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands in small opening in brush on NE. slope.
		No trees within limit.
		NW. face of Fisher's Peak bears N. 16° E.
		East Spanish Peak bears N. 40° 36′ W.
		Alt. 7800 ft.
		Temp. 80°.
		Descend.
7700 ft.	39.00	Bottom of dry ravine, course N.; ascend.
8000 ft.	50.00	Top of high spur, slope N.; descend.
	80.00	Comes in dense brush.
		I advance this cor.

Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, scattering pine timber; oak and locust brush.

253rd mile

S. 89° 47′ E. on the tangent to the parallel.
Difference between measurements of 62.39 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 62.41 chs.
By 2nd set 62.37 chs.; the mean of which is 62.39 chs., from the last cor. +33.61 chs.= 96.00 chs.—80.00 chs. =16.00 chs. on 253rd mile.

13.00 Bottom of ravine, course NE.

7650 ft. 16.00 N. 313 lks.—Correction 866 lks. S. =553 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 252nd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 252.2 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 24 ins. dia. bears N. 36½° E. 118 lks. dist. marked Colo., 252.2 M., B.T.
A pine tree 24 ins. dia. bears S. 51½° E. 98 lks. dist. marked N.M., 252.2 M., B.T.
No other trees within limit.

July 1st, 1903.

On May 18th, 1903, I carefully adjust the transit in all its parts.
And at the point for 252nd mile cor.,
At 3h 44m A. M., l.m.t. May 19th 1903, I observe Polaris at Eastern elongation and mark a point in the line so determined on a plug driven in the ground N. of my station.
At 7h A. M., May 19th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and

mark a point in the true meridian on a plug driven in the ground North of my station.
The magnetic bearing of this meridian is N. 13° 30′ W.
This gives the magnetic variation 13° 30′ E.
I now lay off an angle of 90° from this meridian from the N. to the E. for the tangent to the parallel.
In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

From the point for 252.2nd mile cor. I ran South 31.20 chs. and West 13.57 chs. to Darling's 80th mile cor., which I found under a wire fence, that bears E. and W. about 20 chs., west of the North end of the A. T. & S. F. R.R. Co.'s Raton tunnel.
It was a sandstone 49x12x6 ins. in a stone mound and marked C. on N., 80 M. on E., N.M. on S., 1868 on W. I retraced the Darling line to the East to the top of the high mesa, but failed to find a cor. I also retraced the line to the West, found and destroyed the cors. to and including the 92nd mile cor., which stood near timber R.R. track in Long Canon. West of this I failed to find his cors. till I reached the 114th mile.

——253rd mile——

June 30th, 1903.

East on the tangent to the parallel.

22.00 Top of spur, slope N.; descend.
26.90 Wagon road, bears N. and S.
[illegible] Dry gulch, course N.
[illegible] Atchison Topeka and Santa Fe R.R. track bears NE. and SE. about 4 chs. south of the Wottoon Station sign-board and about 30 chs. North of the N. end of the Raton tunnel.
3.35 Top of ridge bears N. and S.

Thence by stadia measurement,
Angle 6 + Rod 6.20 double=1240 ft. × .9891 =1226.48 ft. +C. =1.14 ft.=1227.62 ft.=18.60 chs. +31.35 chs.=49.95 chs.

49.95 Stadia point, thence by tape;
Difference between measurements of 45.40 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 45.41 chs.
By 2nd set 45.39 chs.; the mean of which is 45.40 chs. +18.60 chs., stadia=64.00 chs., from last cor. +16.00 chs.=80.00 chs.

7950 ft. 80.00 N. .76 of a line—Correction 882 lks. S.=881.24 lks. S. from the tangent,
Set an iron pipe 3 ins. dia 4 ft. long with flanges at the bottom 2 ft. in the ground for 253rd mile cor.
A brass cap on the top of the pipe has raised letters Colo., on N., N.M. on S. and 253 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable.
This cor. on steep brush NW. slope.
A pinon tree 12 ins. dia. bears S. 42½° W. 247 lks. dist. marked 253 M., B.T.
No other trees within limit.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering pine and pinon timber.
Oak and locust brush.
Alt. 7950 ft.
Temp. 75°.

——254th mile——

S. 89° 59' E. on the tangent to the parallel.
Ascend steep.

8450 ft. 28.00 On edge of Bartlett Mesa, bears SW. and NE.

40.00 Leave mesa bears NW. and SE.
Thence by stadia; descend.

Angle 0, Rod 13.00 ft. double=2600 ft.+C.=1.15 ft.=2601.15 ft.=39.41 chs.+40.00 chs.=79.41 chs.

8150 ft. 60.00 Hollow drains N.; ascend.

8450 ft. 79.41 Stadia point on mesa, bears NE. and SW.
Difference between measurements of 40.59 chs. by 2 sets of chainmen is 8 lks. position of middle point,
By 1st set 40.63 chs.
By 2nd set 40.55 chs.; the mean of which is 40.59 chs.+39.41 chs.=80.00 chs.

8450 ft. 80.00 N. 3 lks.—Correction 907 lks. S.=904 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 254th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 254 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
Fishers' Peak bears N. 1° W.
East Spanish Peak bears N. 42° 40′ W.
This cor. stands on the mesa.
Land, rough and broken.
Partly mesa or table land.
Soil, sandy loam and rocky, 3rd rate.
Vegetation, grass; scrub spruce and cedar along edge of cliff; oak brush on slope.
Alt. 8450 ft.
Temp. 82°.

——255th mile——

S. 89° 59′ E.—on the tangent to the parallel.
Over top of mesa.

8450 ft. 22.80 East edge of mesa, bears NW. and SE.
Thence by stadia measurement,
Angle 7°—Rod 12.80 double=2560 ft.×.9851=2521.86 ft.+C.=1.14 ft.=2523.00 ft.=38.22 chs.+22.80 chs.=61.02 chs.

	26.00	Foot of cliffs about 150 ft. high, bears NW. and SE.
		Thence descend over broken rock and through brush.
	61.02	Stadia point, thence by tape; descend.
		Difference between measurements of 41.7 chs. by 2 sets of chainmen is 6 lks., position of middle point,
		By 1st set 41.81 chs.
		By 2nd set 41.75 chs.; the mean of which is 41.78 chs. +38.22 chs. =80.00 chs.
7900 ft.	80.00	N. 7 lks.—Correction 932 lks. S.=925 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flarges at the bottom 2 ft. in the ground for the 255th mile cor.
		A br. cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 255 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		No trees within limit.
		This cor. on N. slope.
		Land, rough and broken, and rocky.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, grass; oak and locust brush with a fringe of spruce and pinon along the cliff.
		Alt. 7900 ft.
		Temp. 82°.

—256th mile—

S. 89° 58' E. on the tangent to the parallel.
Stadia measurement,
Angle 7° + Rod 12.90 double=2580 ft.×.9851 =2541.56 ft.+C.=1.14 ft.=2542.70 ft.= 38.52 chs.

7800 ft.	14.00	Bottom of dry ravine, course NW.; ascend.
	35.00	Foot of cliffs, bears NW. and SE.; ascend.
8450 ft.	38.52	Stadia point on top of mesa, bears NW. and SE.

Thence by tape measurement, across top of mesa.

54.00 East edge of mesa bears NW. and SE.
Descend along steep brushy NE. slope.

80.00 Comes in dense brush.
I. advance this cor.
Land, rough and broken.
Soil, rocky and sandy loam, 3rd rate.
Vegetation, grass on mesa; oak, aspen and locust brush; and scattering spruce and pine timber on NW. slope.

——257th mile——

S. 89° 57' E. on the tangent to the parallel.
Difference between measurements of 55.08 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 55.10 chs.
By 2nd set 55.06 chs.; the mean of which is 55.08 chs.+38.52 chs., stadia=93.60 chs.—80.00 chs.=13.60 chs. on 257th mile.

8150 ft. 13.60 N. 13 lks.—Correction 961 lks. S.=948 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 256th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 256.17 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A spruce tree 30 ins. dia. bears N. 68½° E. 59 lks. dist. marked Colo., 256.17 M., B.T.
A spruce tree 20 ins. dia. bears S. 43¼° E. 126 lks. dist. marked N.M., 256.17 M., B.T.
A spruce tree 16 ins. dia. bears S. 31¼° W. 41 lks. dist. marked N.M., 256.17 M., B.T.
A white oak tree 10 ins. dia. bears N. 56° W. 91 lks. dist. marked Colo., 256.17 M., B.T.
This cor. stands on steep NE. slope in heavy timber.

Alt. 8150 ft.
Temp. 82°.
Descend.

25.00 Bottom of ravine, stream 1 lk. wide, course SE. 50 ft. below cor.; ascend.

27.00 Wagon road bears NW. and SE.

30.00 Point of spur, slope S.

33.00 Same road bears NE. and SW.

36.00 Same gulch, course NW.; ascend.

8250 ft. 55.00 Top of spur, slope N.; descend.

7950 ft. 74.50 Bottom of deep ravine, stream 5 lks. wide, course SE., Lilly's Creek.

76.00 Same road bears NW. and SE.; ascend.

Difference between measurements of 66.50 chs. by 2 sets of chainmen is 8 lks., position of middle point,

By 1st set 66.54 chs.

By 2nd set 66.45 chs., the mean of which is 66.50 chs., from the last cor.+13.50 chs.=80.00 chs.

8000 ft. 80.00 N. 19 lks.—Correction 981 lks. S.=962 lks. S. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 257th mile cor.

A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 257 M. stamped in the center.

Raised a mound of stone 5 ft. base, 2 ft. high around the post.

Pits impracticable.

A pine tree 18 ins. dia. bears N. 31° E. 124 lks. dist. marked Colo., 257 M., B.T.

A pine tree 16 ins. dia. bears S. 82° E. 126 lks. dist. marked N.M., 257 M. B.T.

A pine tree 12 ins. dia. bears S. 5° W. 98 lks. dist. marked N.M., 257 M., B.T.

A pine tree 12 ins. dia. bears N. 48½° W. 147 lks. dist. marked Colo., 257 M., B.T.

Land, rough and broken.

Soil, sandy and rocky, 3rd rate.

Vegetation, spruce, pine and aspen timber;

oak, aspen, locust and willow brush.
Alt. 8000 ft.
Temp. 83°.

——258th mile——

S. 89° 57' E. on the tangent to the parallel.
Descend along S. slope.

7960 ft. 12.00 Bottom of ravine, stream 2 lks. wide, course SW.
Ascend.

8500 ft. 46.50 Top of righ ridge or butte, bears N. and S.; descend.
Stadia measurement.
Angle 8°— Rod 12.95 ft. double=2590 ft.× .9806=2539.75 ft.+C.=1.14 ft.=2540.89 ft.=38.49 chs.+46.50 chs.=84.99 chs.—80.00 chs. =4.99 chs. on the 259th mile.

80.00 Comes in dense brush on steep hillside.
I advance this cor.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, scattering pine and spruce timber. Oak, locust and aspen brush.

——259th mile——

S. 89° 56' E. on the tangent to the parallel.

6.00 Bottom of ravine, course SE.; ascend
Difference between measurements of 53.51 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 53.54 chs.
By 2nd set 53.48 chs., the mean of which is 53.51 chs.+38.49 chs., stadia=92.00 chs.—80.00 chs.=12.00 chs. on 259th mile.

8200 ft. 12.00 N. 28 lks.—Correction 1010 lks. S.=982 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 258th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 258.15 M. stamped in the center.

Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.
A pine tree 12 ins. dia. bears N. 40° E. 56 lks. dist. marked Colo., 258.15 M., B.T.
A pine tree 18 ins. dia. bears S. 48½° E. 68 lks. dist. marked N.M., 258.15 M., B.T.
A pine tree 18 ins. dia. bears S. 71½° W. 83 lks. dist. marked N.M., 258.15 M., B.T.
A pine tree 18 ins. dia. bears N. 25° W. 185 lks. dist. marked Colo., 258.15 M., B.T.
Alt. 8200 ft.
Temp. 83°.
Ascend.

8250 ft. 29.00 On spur, slope SE.; descend.

65.00 Spring branch 1 link wide course SE.; ascend.
Difference between measurements of 68.00 chs. by 2 sets of chainmen is 10 lks. position of middle point,
By 1st set 67.05 chs.
By 2nd set 67.05 chs.; the mean of which is 68.00 chs. from the last cor. +12.00 chs.= 80.00 chs.

7900 ft. 80.60 N. 37 lks.—Correction 1031 lks. S.—994 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 259th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 259 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 16 ins. dia. bears N. 49½° E. 147 lks. dist. marked Colo., 259 M., B.T.
A pine tree 24 ins. dia. bears S. 25½° E. 117 lks. dist. marked N.M., 259 M., B.T.
A pine tree 24 ins. dia. bears S. 65° W. 121 lks. dist. marked N.M., 259 M., B.T.
A pine tree 16 ins. dia. bears N. 47° W. 198 lks. dist. marked Colo., 259 M., B.T.

This cor. stands on SW. slope, in heavy timber.
Land, rough and broken.
Soil, sandy loam, 3rd rate.
Vegetation, pine and spruce timber.
Oak, aspen and locust brush.
Alt. 7900 ft.
Temp. 83°.

——260th mile——

S. 89° 55′ E. on the tangent to the parallel.
Ascend.

7950 ft.	5.00	Top of spur, slope S.
		Thence by stadia measurement.
		Angle 4°—Rod 13.00 ft. double=26.00 ft.× .9951=2587.26 ft.+C.=1.15 ft.=2588.41 ft.=39.11 chs.+5.00 chs.=44.11 chs.
7650 ft.	35.00	Bottom of canon, stream 4 lks. wide, course SE.
		Small house about 2 chs. N.
	38.00	Wagon road bears N. and S.; ascend.
7700 ft.	44.11	Stadia point on spur, slope S.
		Descend, thence by tape measurement,
	60.00	Wagon road, bears NE. and SW.
7650 ft.	63.00	Chicorica Creek 10 lks. wide, course SW.
		Ascend in dense brush.
	80.00	Comes in dense brush.
		I advance this cor.
		Land, rough and broken.
		Soil, rocky, sandy loam, 3rd rate.
		Vegetation, grass; scattering pine and aspen timber. Oak, aspen and locust brush.

——261st mile——

S. 89° 55′ E. on the tangent to the parallel.
Ascend in dense oak brush.
Difference between measurements of 56.89 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 56.90 chs.
By 2nd set 56.88 chs.; the mean of which is 56.89 chs.+39.11 chs.=96.00 chs.—80.00 chs. =16.00 chs. on the 261st mile.

7975 ft. 16.00 N. 12 lks.—Correction 1060 lks. S.=1048 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 260th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 260.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This cor. stands on steep N. slope in timber and brush.
An aspen tree 10 ins. dia. bears N. 22½° E. 70 lks. dist. marked Colo., 260.2 M., B.T.
An aspen tree 10 ins. dia. bears S. 89° E. 34 lks. dist. marked N.M., 260.2 M., B.T.
A white oak tree 8 ins. dia. bears S. 11° W. 46 lks. dist. marked N.M., 260.2 M., B.T.
An aspen tree 8 ins. dia. bears N. 32° W. 36 lks. dist. marked Colo., 260.2 M., B.T.
Alt. 7975 ft.
Temp. 84°.
Ascend in dense timber and brush.

June 30th, 1903.

I examine the transit and compare the steel tapes with the standard, find tapes of correct length and instrument in adjustment.

June 29th, 1903.

80.00 Comes on steep N. slope in dense timber and brush.
Land, rough and broken.
Soil, sandy loam, 2nd rate.
Vegetation, pine, spruce, aspen and oak timber.
Oak, aspen, wild cherry and locust brush.

——262nd mile——

S. 89° 54′ E. on the tangent to the parallel.
Ascend.

	2.00	Foot of lava cliffs bears NE. and SW.; ascend.
	4.30	Top of cliffs about 200 ft. high on edge of mesa bears NE. and SW. Thence across mesa land; leave timber and brush. Difference between measurements of 80.00 chs. by 2 sets of chainmen is 16 lks., position of middle point, By 1st set 80.08 chs. By 2nd set 79.92 chs.; the mean of which is 80.00 chs., from last cor.+16.00 chs.=96.00 chs.—80.00 chs.=16.00 chs. on the 262nd mile.
8700 ft.	16.00	N. 65 lks.—Correction 1085 lks. S.=1020 lks. S. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 261st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 261 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post Pits impracticable. No bearings. Thence over mesa land.
	75.80	Carpenter's house about 12 chs. N.
	78.15	Wagon road bears N. and S. Difference between measurements of 64.00 chs. by 2 sets of chainmen is nothing, the mean of which is 64.00 chs. from last cor.+16.00 chs.=80.00 chs.
8700 ft.	80.00	N. 76 lks.—Correction 1105 lks. S.=1029 lks. S. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 262nd mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 262 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high around the post.

Pits impracticable.
S. gable of Carpenter's house bears N. 22½° W., about 13.00 chs. dist.
Chimney on square house bears S. 41½° E. about ½ mile dist.
Round hill bears S. 28½° E. about 7 miles dist.
Land, gently rolling mesa.
Soil, black loam, 2nd rate.
Vegetation, grass; some of land cultivated.
Alt. 8700 ft.
Temp. 75°.

——263rd mile——

S. 89° 53′ E. on the tangent to the parallel.
Over gently rolling mesa land.
Cultivated fields N. and S. of line.

78.67 Wagon road, bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of mid point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

8675 ft. 80.00 N. 92 lks.—Correction 1130 lks. S.—1038 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 263rd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 263 M. stamped in the center.
Raised a mound of stone 5 ft. base, 2 ft. high around the post.
Pits impracticable.
Round hill bears S. 20¾° E. about 6 miles dist.
Chimney on square house bears S. 32½° W. about ½ mile dist.
Land, gently rolling mesa.
Soil, black loam, 2nd rate.

Vegetation, grass, used for grazing; cultivated land on each side of the line.
Alt. 8675 ft.
Temp. 80°.

——264th mile——

S. 89° 53′ E. on the tangent to the parallel. Descend.

5.50 West edge of basin that becomes a pond in wet weather, bears N. and S. about 7 chs., each way.

12.00 East edge of basin, bears N. and S.; ascend.

20.00 Top of ridge bears N. and S.
Thence over rolling hills.

35.00 About 30 chs. south of this point found and destroyed Darling's 69th mile cor.
Also found the 70th mile cor. and destroyed it.
All we were able to find on this mesa.
Difference between measurements of 66.28 chs. by 2 sets of chainmen is 2 lks.; position of middle point,
By 1st set 66.29 chs.
By 2nd set 66.27 chs.; the mean of which is 66.28 chs.

8700 ft. 66.28 East edge of mesa, bears NW. and SE.
From this point made triangulation, across Bear Canon, which has precipitous sides of lava rock, and the bottom covered with dense brush.
Set flag on line across canon; ran base line S. 0° 7′ W. at right angles to the tangent 30.00 chs. from south end of base sight to north end and measure angle to flag across canon 72° 56′. Flag bears N. 73° 03′ E.
Then Log. 30.00 chs. base=1.477121×Log tangent 72° 56′=10.512857=1.989978=97.72 chs. to Flag across Canon.
97.72 chs.+66.28 chs.=164.00 chs.—160.00 chs.=4.00 chs. on 266th mile.

8400 ft. 80.00 Comes in Bear Canon, impracticable to establish.
Land, gently rolling, grass covered hills and rough rocky canon.
Soil, sandy loam, and rocky, 2nd and 3rd rate.
Vegetation, grass on hills; pine, spruce, aspen oak timber and brush in canon.

——265th mile——

S. 89° 52′ E. on the tangent to the parallel
This mile comes all in Bear Canon, is very rough and covered with dense timber and brush.

8400 ft. 80.00 Comes at foot of wall of canon, bears NW. and SE., in dense brush; ascend.
I advance this cor.
Land, rough, rocky.
Soil, rocky, 3rd rate.
Vegetation, pine, spruce, oak and aspen timber; oak, aspen, wild cherry and locust brush.

——266th mile——

S. 89° 52′ E. on the tangent to the parallel.

8700 ft. 4.00 Triangulation point on top of wall about 300 ft. high, bears NW. and SE.
N. 130 lks.—Correction 1180 lks. S.—1050 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom on bed rock for 265th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 265.05 M. stamped in the center. Raised a mound of stone 6 ft. base 2½ ft. high around the post.
Pits impracticable.
This cor. stands on rocky spur, at SW. cor. of high mesa.

On the evening of May 21st, 1903, I carefully examine and adjust the transit in all its parts.

At 3h 36m A. M. l.m.t, I observe Polaris at Eastern elongation, May 22nd, 1903, and mark a point in the line so determined on a plug driven in the ground N. of my station, which is near the point for 265th mile cor. At 7h 15m A. M., May 22nd, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground, North of my station.

The magnetic bearing on the meridian is N 13° 20′ W.

This gives magnetic variation 13° 20′ E.

I now lay off an angle of 90° from the North to the East, for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

——266th mile continued——

East on the tangent to the parallel.

Ascend gradually over rolling mesa land.

8730 ft. 48.00 Top of high ridge bears NW. and SE., descend.

53.00 On wall of rimrock, bears NE. and SW.

Thence by stadia measurement; descend.

Angle 13°—Rod 9.00 ft. double=1800 ft. × .9494=1708.92 ft.+C.=1.12 ft.=1710.04 ft = 25.91 chs.+53.00 chs.=78.91 chs.

55.00 Foot of lava wall, bears NE. and SW., about 200 ft. high.

Thence descend through timber and brush.

78.91 Stadia point, thence by tape measurement.

Difference between measurements of 50.09 chs. by 2 sets of chainmen is 4 lks., position of middle point,

By 1st set 50.11 chs.

By 2nd set 50.07 chs.; the mean of which is

50.09 chs.+25.91 chs., stadia.=76.00 chs. from last cor.+4.00 chs.=80.00 chs.

8100 ft. 80.00 N. .76 of a link—Correction 1204 lks. S.—1203.24 lks.

South from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 266th mile cor:

A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 266 M. stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A white oak tree 10 ins. dia. bears S. 46° E. 55 lks. dist. marked N.M., 266 M., B.T.

A white oak tree 12 ins. dia. bears S. 9° W. 30 lks. dist. marked N.M., 266 M., B.T.

A white oak tree 8 ins. dia. bears N. 58° W. 15 lks. dist. marked Colo., 266 M., B.T.

No trees NE. suitable for bearing tree.

This cor. in timber and brush, on E. slope.

Land, rolling and broken.

Soil, sandy loam and rocky, 3rd rate.

Vegetation, grass on rolling mesa; and oak pine, spruce, aspen and cedar timber; oak, aspen and locust brush on slope.

Alt. 8100 ft.

Temp. 85°.

——267th mile——

S. 89° 59′ E. on the tangent to the parallel.

Descend through timber and dense brush.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks., position of middle point,

By 1st set 80.07 chs.

By 2nd set 79.93 chs.; the mean of which is 80.00 chs.

7400 ft. 80.00 On spur, slope SE.

N. 3 lks.—Correction 1228 lks. S.=1225 lks. S. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 267th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 267 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A cedar tree 8 ins. dia. bears N. 45¾° E. 402 lks. dist. marked Colo., 267 M., B.T.
No other trees within limit.
Land, rough and broken.
Steep SE. slope from mesa.
Soil, rocky, clay loam, 3rd rate.
Vegetation, scattering pine, cedar and aspen timber. Oak, aspen and locust brush.
Alt. 7400 ft.
Temp. 84°.

——268th mile——

S. 89° 59' E. on the tangent to the parallel.
Descend.
Stadia measurement,
Angle 7°—Rod 12.70 ft. double=2540 ft.×.9851=2502.15 ft.+C.=1.14 ft.=2503.29 ft.=37.92 chs.

22.00 Bottom of dry ravine 300 ft. deep, course SE.; ascend.

37.92 Stadia point on spur, slope SE.
Thence by tape,
Difference between measurements of 42.08 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 42.10 chs.
By 2nd set 42.06 chs.: the mean of which is 42.08 chs.+37.92 chs.; stadia=80.00 chs.

6700 ft. 80.00 N. 7 lks.—Correction 1253 lks. S.=1246 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 268th mile cor.

A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 268 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
No trees within limits.
Land, rough and broken.
Soil, clay loam, 3rd rate.
Vegetation, scattering pine, pinon and cedar timber; oak, aspen and locust brush.
Alt. 6700 ft.
Temp. 80°.

June 29th, 1903.

——269th mile——

June 28th, 1903.

S. 89° 58' E. on the tangent to the parallel.
Descend.

9.00 Creek bottom, bears NE. and SW.
Wagon road, bears NE. and SW.

6600 ft. 10.00 San Ysidro Creek, 15 lks. wide, course NE.; ascend.

48.00 Foot of steep bluff, bears NE. and SW.; ascend.

50.00 Coal cropping bears NE. and SW.

6700 ft. 52.00 Top of ridge bears NE. and SW.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point,
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is 80.00 chs.

6600 ft. 80.00 N. 12 lks.—Correction 1278 lks. S.—1266 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 269th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 269 M. stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post,
Pits impracticable.
A pinon tree 10 ins. dia. bears S. 27½° W. 15 lks. dist. marked N.M., 269 M., B.T.
No other trees within limit suitable for bearing trees.
Land, rolling and broken.
Soil, clay loam, and stony, 3rd rate.
Vegetation, pinon, cedar and aspen timber Oak and aspen brush.
Alt. 6600 ft.
Temp. 75°.

——270th mile——

S. 89° 57' E. on the tangent to the parallel.
Ascend.

6.00 Top of spur, slope SE.; descend.

35.00 Foot of hills bears NE. and SW.; bottom dry creek, dry water-course 8 lks. wide, course NE.

55.00 Darling's astronomical monument No. 2 bears South about 20 chs. dist. This monument is a cedar post, 12 ins. square and 8 ft. high, marked Colo. on N., 1868 on E., New Mexico on S., and 37° N.L. on W.

I destroy these marks and retrace this line to the west to foot of mesa. Failed to find any more corners.

Also retrace the Darling line from his monument No. 2, to the East,—Failed to find any corners, till I reach his 58th mile cor. at Trinchera Creek.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

6300 ft. 80.00 N. 19 lks.—Correction 1302 lks. S.=1283 lks. S. from the tangent,
Set temporary 270th mile cor.

See page 413.
Land, rolling.
Soil, clay loam, 3rd rate.
Vegetation, grass; scattering pinon timber; and oak and locust brush.
Alt. 6300 ft.
Temp. 78°.

——271st mile——

S. 89° 57′ E. on the tangent to the parallel.
Across little valley.

3.50 Dry gulch, course N.; house about 30 chs. SW.

20.00 Foot of hills bears NE. and SW.; ascend.

40.00 Top of ridge about 100 ft. high bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks.; position of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

6350 ft. 80.00 N. 27 lks.—Correction 1327 lks. S.—1300 lks. S. from the tangent.
Set temporary 271st mile cor.
Land, rolling.
Soil, clay loam, 2nd rate.
Vegetation, grass; oak and locust brush.
Alt. 6350 ft.
Temp. 80°.

——272nd mile——

S. 89° 56′ E. on the tangent to the parallel.
Descend over rolling ground.

15.00 Dry gulch, course NE.

30.00 Top of low ridge, bears NE. and SW.

67.50 Gulch, water in holes, course NE.

77.00 Road to Trinchera, bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.

6150 ft. 80.00 N. 37 lks.—Correction 1352 lks. S.—1315 lks. S. from the tangent,
Set temporary 272nd mile cor.
Land, rolling.
Soil, clay loam, 2nd rate.
Vegetation, grass and oak brush
Alt. 6150 ft.
Temp. 82°.

—273rd mile—

S. 89° 51' E. on the tangent to the parallel.
Ascend over rolling land.
77.00 In hollow, drains N.; ascend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
6100 ft. 80.00 N. 49 lks.—Correction 1376 lks. S.—1327 lks. S. from the tangent,
Set temporary 273rd mile cor.
Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass and oak brush.
Alt. 6100 ft.
Temp. 82°.

—274th mile—

S. 89° 55' E. on the tangent to the parallel.
Ascend, over rolling land.
3.00 Top of ridge bears NE. and SW., 50 ft. high.
30.00 Wagon road, bears NE. and SW.
40.00 Brow of ridge bears NE. and SW.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.
6050 ft. 80.00 N. 62 lks.—Correction 1401 lks. S.—1339 lks. S. from the tangent,

Set temporary 274th mile cor.
Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass and oak brush
Alt. 6050 ft.
Temp. 78°

June 28th, 1903.

—275th mile—

S. 89° 54′ E. on the tangent to the parallel. The intersection with a meridian run North from Astronomical Station No. 6 at Trinchera Creek, comes at 34.00 chs. in this mile. This station, No. 6, was found to be 29.88 chs. S. of this point, on the tangent.
The off-set being 72 lks. N., makes point on parallel 30.60 chs. N. of station. This station was found by astronomical observations on the nights of Oct. 28th, 29th and 30th, 1902, to be in Lat. 36° 59′ 52.19″ N. or 11.96 chs. South of the 37th parallel. Therefore, this point on the projected line from the West is 18.64 chs. N. of the 37th parallel and 14.04 chs. outside of the limit of 3′ of arc. As it is impracticable to place astronomical monument on this meridian, as it comes in cultivated land, and near R. L. Survant's house, the monument was moved West and at

6050 ft. 12.62 N. 64 lks.—Correction 1406 lks. S. =1342 lks. S. from the tangent,
Set temporary astronomical monument at 458 lks. N. of the 37th parallel, as determined by astronomical observations, being just within the limit of 3′ arc, allowed by the Hon. Commissioner.
For description of permanent monument, see page 415.

June 28th, 1903.

At a point 5 lks. South of the point for temporary 174th mile cor. and due West of the

point for temporary astronomical monument No. 6, having previously examined the transit and found it to be in perfect adjustment, both as to the levels and the collimation, on May 25th, 1903, at 3h 21m A. M. L. M. t. I observe Polaris at Eastern elongation and mark a point in the meridian so determined on a plug driven in the ground N. of my station.

At 7h 20m A. M., May 25th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian thus determined on a plug driven in the ground north of my station.

The magnetic bearing of the true meridian is N. 13° 15′ W.

This gives magnetic variation, 13° 15′ E.

I now lay off 90° from the meridian from the N. to the East for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

——275th mile continued——

East on the tangent to the parallel.

Across Creek bottom.

15.40 Road to the Plaza (once known as Brazil), bears N. and SE.

16.30 Wire fence bears N. and SE., enter R. L. Survant's field.

16.30 Irrigating ditch, bears N. and SE.

33.00 Survant's house about 3 chs. South.

34.00 Darling's 58th mile cor. bears South 15.10 chs. dist.

A basalt or trap rock 20x12x10 ins. set in ground and marked C. on N., 58 M. on E., N. M. on S. and 1868 on W. faces.

I destroy this cor.

37.50 Dry bed of Trinchera Creek 25 lks. wide, course N.

45.00 Foot of lava bluff about 60 ft. high, bears NE. and SW.
Leave field and creek bottom; ascend.
47.75 Top of bluff, bears NE. and SW.
Thence over gently rolling, valley land.
75.00 Foot of hills bears NE. and SW. Leave valley; ascend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
6150 ft. 80.00 N. .76 of a link from the tangent,
Set temporary 275th mile cor.
Land, creek bottom, and valley.
Soil, sandy loam, 2nd and 3rd rate.
Vegetation, grass, cultivated crops, alfalfa, principally. Oak, aspen and willow brush along creek.
N. B.—The subsequent adjustment of this line to the 37th parallel places Survant's house just North of the line in Colorado.
See page 416.

——276th mile——

S. 89° 59′ E. on the tangent to the parallel.
4.00 A remarkable basalt or trap dyke resembles a wall laid up by man. Extends across the country about 4 miles, bears N. 80° E. and S. 80° W.
Descend along S. slope.
60.00 Dry gulch, course NE.; ascend.
Along N. base of volcanic cone.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.
6175 ft. 80.00 N. 3 lks. from the tangent,
Set temporary 276th mile cor.

Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass and oak brush.
Alt. 6175 ft.
Temp. 70°.

——277th mile——

S. 89° 59′ E. on the tangent to the parallel.
Descend along N. slope of volcanic cone in oak brush.

8.00 Bottom of dry gulch, 30 ft. deep, course N.; ascend.

20.00 Top of low ridge bears NW. and SE.; descend.

35.00 Foot of hills bears NW. and SE.; enter small valley.

36.00 Wagon road, bears NW. and SE.

57.60 Road, bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing: the mean is 80.00 chs.

6100 ft. 80.00 N. 7 lks. from the tangent,
Set temporary 277th mile cor.
Land, rolling and valley.
Soil, sandy loam, 3rd rate.
Vegetation, grass and oak brush.
Alt. 6100 ft.
Temp. 75°.

——278th mile——

S. 89° 58′ E. on the tangent to the parallel.

.50 Dry bed of stream 15 lks. wide, course NW. about 3.00 chs. then NE.

3.00 Foot of hill bears N. and S.; ascend.

8.00 Top of bluff about 50 ft. above valley, bears NE. and SW.
Thence over rolling ground.

36.00 Road bears N. and S.

42.00 Gulch, water in holes, banks 15 ft. high, course N.
Ascend.

80.00 Enter brush and scattering timber, bears NE. and SW.
80.00 Comes on steep hillside in dense brush.
I advance this cor.
Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass; oak brush, and scattering pinon timber.

——279th mile——

S. 89° 57′ E. on the tangent to the parallel
6.00 Top of hill bears NW. and SE. about 100 ft. above bottom of gulch.
Difference between measurement of 88.00 chs. by 2 sets of chainmen is 6 lks. position of middle point,
By 1st set 88.03 chs.,
By 2nd set 87.97 chs.; the mean of which is 88.00 chs.—80.00 chs.=8.00 chs. on the 279th mile.
6200 ft. 8.00 N. 13 lks. from the tangent,
Set temporary 278th mile cor., marked 278.1 M.
Land, rolling.
Soil, sandy and stony, 3rd rate.
Vegetation, grass; oak brush and scattering pinon timber.
Alt. 6200 ft.
Temp. 78°.
14.00 Dry ravine about 30 ft. deep, course NW.; ascend over low brush covered hills.
80.00 Comes in dry gulch, course NW.
I advance this cor.
Land, rolling.
Soil, sandy loam, and stony, 3rd rate.
Vegetation, grass; oak brush and scattering pinon timber.

——280th mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascend.
5.80 Top of ridge bears NE. and SW.

Difference between measurements of 78.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 78.02 chs.
By 2nd set 77.98 chs.; the mean of which is 78.00 chs., from the last cor.+8.00 chs.—86.00 chs.—80.00 chs.=6.00 chs. on 280th mile.

6250 ft. 6.00 N. 19 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 279th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 279.075 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
No trees suitable for bearing trees.
Alt. 6250 ft.
Temp. 75°.

May 25th, 1903.

May 26th, 1903, rain. No line run.
I examine and adjust the transit and compare the steel tapes with the standard. Find them all correct.
Descend.

19.25 Dry gulch, course N.; leave brush, bears NW. and SE.

56.00 Dry gulch, course NW.

60.90 Wagon road, bears NW. and SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

5950 ft. 80.00 N. 27 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 280th mile cor.

A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 280 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
A box elder tree 10 ins. dia. bears N. 49° 20' E. 141 lks. dist., marked Colo., 280M., B.T.
No other trees within limit.
A Mexican cabin about ½ mile N.
Land, rolling.
Soil, sandy loam.
Vegetation, grass and oak brush.
Alt. 5950 ft.
Temp. 60°.

281st mile

S. 89° 56' E. on the tangent to the parallel
1.50 Dry bed of stream 20 lks. wide, course N.
Ascend.
10.00 Enter timber and brush, bears NE. and SW.
35.00 Darling's 52nd mile cor. bears S. 11.80 chs. dist.
I destroyed this cor. The first we have found East of his 58th mile cor.
36.60 Top of ridge bears N. and S., 300 ft. above gulch.
Thence over pinon hills.
43.00 Dry ravine, course N.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.
6120 ft. 80.00 N. 37 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 281st mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 281 M. stamped i nthe center.

Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pinon tree 8 ins. dia. bears N. 54° W. 180 lks. dist. marked Colo., 281 M., B.T.
No other trees suitable for bearing trees within limit.
Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, pinon timber; oak and aspen brush.
Alt. 6120 ft.
Temp. 68°.

——282nd mile——

S. 89° 55′ E. on the tangent to the parallel.
Descend.

	2.00	Dry gulch; course NE.
	3.00	Dry ravine, course N., 50 ft. deep; ascend
	48.00	Thence by stadia measuremen t,
		Angle 8°+Rod 9.75 ft. double=1950 ft. × .9806=1912.17 ft.+C.=1.14 ft.=1913.31 ft.= 28.99 chs.+48.90 chs.=77.89 chs.
	54.00	Bottom of dry ravine, course N.
	77.89	Stadia point, thence by tape.
		Difference between measurements of 51.01 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 51.02 chs.,
		By 2nd set 51.00 chs.; the mean of which is 51.01 chs.+28.99 chs., stadia=80.00 chs.
6450 ft.	80.00	N. 49 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 282nd mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 282 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		Volcanic cone at Watervale station on the

Colorado & Southern R.R. bears N. 7° 05′ W. about 1 mile dist.
A volcanic cone bears N. 55° 40′ W.
A volcanic cone bears S. 84° 21′ W. about 7 mile dist.
This cor. stands on N. slope in dense oak brush.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass, oak brush and scattering pinon timber.
Alt. 6450 ft.
Temp. 72°.

——283rd mile——

S. 89° 55′ E. on the tangent to the parallel.
Ascend.

29.70 Top of spur, slope NE.
Thence by stadia measurements,
Angle 4°—Rod 13.00 ft. double=2600 ft. × .9951=2587.26 ft.+C.=1.15 ft.=2588.41 ft.=39.21 chs.+29.70 chs.=68.91 chs.

6850 ft. 68.91 Stadia point on sharp brushy spur, slope N.
Angle 8°+Rod. 8.35 ft. double=1670 ft. × .9806=1637.60 ft.+C.=1.14 ft.=1638.74 ft.=24.82 chs.+68.91 chs.=93.73 chs.—80.00 chs. =13.73 chs. on 284th mile.

6550 ft. 80.00 Comes in dry canon about 300 ft. below top of spur, course N.
I advance this cor.
Land, rough and broken.
Soil, rocky, clay loam, 3rd rate.
Vegetation, dense oak and aspen brush.

——284th mile——

S. 89° 54′ E. on the tangent to the parallel.

13.73 On top of wall of rim rock, about 200 ft. high, bears NE. and SW.
Thence by tape.

7075 ft. 14.00 N. 64 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for 283rd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 283.175 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high around the post.
Pits impracticable.
A pinon tree 8 ins. dia. bears S. 80° 26' E. 177 lks. dist. marked N.M., 283.175 M., B.T.
No other trees within limit, suitable for bearing trees.
Volcanic cone at Watervale bears N. 42° 30' W.
This cor. stands on high, rocky spur.
Alt. 7075 ft.
Temp. 70°.
Thence by stadia.
Angle 11° — Rod 12.60 ft. double=2520 ft. × .9636=2428.27 ft.+C.=1.13 ft.=2429.40 ft.=36.81 chs.+14.00 chs.=50.81 chs.

18.00 Foot of wall about 75 ft. high bears NW. and SE.
Thence along N. slope in dense brush.

25.00 Springs just North of line.

50.81 Stadia point, thence by tape.

6350 ft. 70.00 Bottom of ravine course N.; ascend.
Difference between measurements of 29.19 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 29.20 chs.
By 2nd set 29.18 chs., the mean of which is 29.19 chs.+36.81 chs., stadia=66.00 chs. from last cor.+14.00 chs.=80.00 chs.

6500 ft. 80.00 N. 76 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 284th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 284th M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.
A pinon tree 10 ins. dia. bears N. 60° E. 57 lks. dist. marked Colo., 284 M., B.T.
A pine tree 12 ins. dia. bears S. 44° W. 283 lks. dist. marked N.M., 284 M., B.T.
No other trees within limit suitable for bearing trees.
Extreme N. end of rocky point of mesa, bears N. 69° 26′ W. about 1 mile dist.
Land, rough, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, oak, aspen and wild cherry brush; scattering pine and aspen timber.
Alt. 6500 ft.
Temp. 54°.

May 27th, 1903.

I examine the transit and find it in adjustment, compare the steel tapes with the standard and find them all of correct length.

285th mile

S. 89° 53′E. on the tangent to the parallel.
Ascend along brushy N. slope.
By stadia measurement,
Angle 3°+4.00 ft. double=800 ft.×.9973=797.84 ft.+C.=1.15 ft.=798.99 ft.=12.10 chs.

12.10 Stadia point,
Angle 4°+Rod7.95 ft. double=1590 ft.×.9951=1582.21 ft.+C.=1.15 ft.=1583.36 ft.=23.99 chs.+12.10 chs.=36.09 chs.

36.09 Stadia point,
Angle 0° Rod 5.00 ft. double=1000 ft.+C.=1.15 ft.=1001.15 ft.=15.17 chs.+36.09 chs.=51.26 chs.

51.26 Stadia point,
Angle 16°+Rod 7.30 ft. double=1460 ft.×.9240=1349.04 ft.+C.=1.10 ft.=1350.14 ft.=20.45 chs.+51.26 chs.=71.71 chs.

70.00 Foot of rim rock wall about 200 ft. high, bears NE. and SW.; ascend.

71.30 Top of wall of westerly edge of high mesa; the north end of the Raton plateau, bears NE. and SW.

Leave brush, bears NE. and SW.

6950 ft. 71.71 Stadia point, thence by tape measurement. Across mesa.

6950 ft. 80.00N. 92 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 285th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 285 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high, around the post.

Pits impracticable.

Volcanic cone at Watervale bears N. 59° 20′ W.

North face of NE. salient of Raton plateau bears N. 76° 38′ W.

This cor. stands on the mesa.

Land, mountainous.

Soil, rocky, sand and clay, 3rd rate.

Vegetation, grass on mesa; dense oak and aspen brush on slope.

Alt. 6950 ft.

Temp. 60°.

——286th mile——

S. 89° 53′ E. on the tangent to the parallel. Across high mesa.

56.00 Dry ravine about 100 ft. deep, course N. Drops over wall about 15.00 chs. N.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,

By 1st set 80.02 chs.,

By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

6900 ft. 80.00 N. 110 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 286th mile cor. A brass cap on the top

of the pipe has raised letters Colo. on N., N.M. on S. and 286 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist.
Raised a mound of earth, 5 ft. base 2 ft. high around the post.
Land, high plateau.
Soil, sandy, 3rd rate.
Vegetation, grass.
Alt. 6900 ft.
Temp. 62°.

287th mile

S. 89° 52′ E. on the tangent to the parallel.

6900 ft. 15.30 East edge of mesa, bears NE. and SW.
Descend, thence by stadia measurement,
Angle 9°— Rod 6.36 ft. double=1272 ft.× .9755=1240.84 ft.+C.=1.13 ft.=1241.97 ft.=18.82 chs.+15.30=34.12 chs.

34.12 Stadia point,
Angle 11°—Rod 6.80 single=680 ft.×.9656 =655.25 ft.+C.=1.13 ft.=656.38 ft.=9.94 chs.+34.12 chs.=44.06 chs.

44.06 Stadia point,
Angle 5°—Rod 10.10 ft. double=2020 ft.× .9924=2004.65 ft.+C.=1.14 ft.=2005.79 ft.=30.39 chs.+44.06 chs.=74.45 chs.

74.45 Stadia point, thence by tape measurement,

6700 ft. 80.00 N. 129 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 287th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 287 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A point of rocks on N. side of rocky butte bears S. 65° 25′ E. about ¾ of a mile dist.
N. face wall of mesa, bears N. 83° 45′ W. about ¾ of a mile dist.
Cone-shaped peak bears S. 10° 56′ about 7 miles dist.

This cor. stands on SE. slope W. st of R.R track at the foot of Raton mountains.
Land, mountainous.
Soil, sandy loam, 3rd rate.
Vegetation, grass, scattering pinon timber and oak brush.
Alt. 6700 ft.
Temp. 72°.

——288th mile——

S. 89° 52′ E. on the tangent to the parallel. Descending; leave the Raton Mountains, bears NW. and SE.

4.75 Colorado & Southern R.R. track bears NE. and SW.
Emery Gap station about 2 miles SW.

6600 ft. 24.00 Dry arroyo, course NE., ascend.

50.80 Top of spur, slope N.; descend gradually.
Difference between measurements of 80.00 chs. by 2 setsof chainmen is 8 lks. position of middle point,
By 1st set 80.04 chs.,
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

6750 ft. 80.00 N. 150 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 3 ft. in the ground for 288th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S., and 288 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
No bearings.
Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass; sage and scattering oak brush.
Alt. 6750 ft.
Temp. 72°.

——289th mile——

S. 89° 51′ E. on the tangent to the parallel.
Descend.

6668 ft. 41.00 Bottom of dry ravine, about 100 ft. deep, course N.
Ascend.

6675 ft. 51.00 Top of spur, slope S. N. side of round hill; descend.

6650 ft. 60.00 Foot of hills, bears NW. and SE.
Thence over nearly level plain.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 80.05 chs.;
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

6650 ft. 80.00 N. 172 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 289th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 289 M. stamped in the center.
Dug pits 36x36x18 ins. N., S., E. and W. of cor. 6 ft. dist.
Raised a mound of earth, 5 ft. base 2 ft. high, around the post.
No bearings.
Land, rolling and plain.
Soil, sandy loam, 3rd rate.
Vegetation, grass, sage and scattering oak brush on rolling land; and grass and soap weed on plain.
Alt. 6650 ft.
Temp, 65°.

——290th mile——

S. 89° 50′ E. on the tangent to the parallel.
Over nearly level land.

25.25 Darling's 43rd mile cor. bears South 5.18 chs. dist.
A sandstone 22x8x4 ins. marked C. on N., 43 M. on E., N.M. on S. and 1868 on W. faces

I destroyed this cor. The first one I have been able to find East of his 52 nd mile cor.

30.00 Enter oak brush, bears N. and S.

54.00 Bottom of Long Canon, about 75 ft. deep. Dry bed 20 lks. wide, course SE.; ascend.

65.00 On N. wall of canon bears NW. and SE.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point,

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is 80.00 chs.

6600 ft. 80.00 N. 196 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 290th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 290 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft high, around the post. Pits impracticable.

A round peak on mesa bears S. 16° W.

South side of butte E. of R.R. track bears S. 82° W.

N. salient of Raton plateau bears N. 85¾ W.

Land, gently rolling, except where broken by canon.

Soil, sandy loam, and rocky, 3rd rate.

Vegetation, grass and oak brush.

Alt. 6600 ft.

Temp. 60°.

May 28th 1903.

Having previously made a careful examination of the transit and found it in perfect adjustment,

At the point for the 290th mile cor.

At 3h 05m A. M., l.m.t., May 29th, 1903, I observe Polaris at Eastern elongation and mark a point in the line so determined on a plug driven in the ground North of my station.

At. 7h 15m A. M., May 29th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian thus determined, on a plug driven in the ground N. of my station.

The magnetic bearing of this meridian is N. 12° 45′ W.

This gives the magnetic variation 12° 45′ E.

I now lay off an angle of 90° from this meridian from the North to the East for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used with the telescope reversed at each sight.

This line was run through to the 7th astronomical station, at the 325th mile cor., where the falling was found to be 10.52 chs., south of the 37th parallel, as determined by astronomical observations on the nights of Nov. 3rd, 4th and 7th, 1902. This being 5.92 chs. outside the limit of 3″ arc allowed by the Hon. Commissioner, the line was corrected from this point, at the rate of 18 lks. N. per mile to bring it inside of said limit,—hence the difference in date between the projection of the tangents and the establishment of permanent corners.

——291st mile——

East on the tangent to the parallel.

Along North wall of Long Canon.

24.44 On wall of canon, bears NE. and SW.

Thence by stadia measurement,

Angle 0° Rod 9.20 double=1840 ft.+C.=1.15 ft.=1841.15 ft.=27.90 chs.+24.44 chs.=52.34 chs.

38.50 Bottom of Long Canon about 150 ft. deep, course NE.

52.34 Stadia point on south wall, bears NE. and SW.

Thence by tape measurement,

61.00 Enter timber and brush, bears N. and S.

Difference between measurements of 52.10 chs. by 2 sets of chainmen is 6 lks., position of middle point,

By 1st set 52.13 chs.,

By 2nd set 52.07 chs.; the mean of which is 52.10 chs.+27.90 chs., stadia=80.00 chs.

6700 ft. 80.00 N. .76 of a link+Correction 18 lks. N.=18.76 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 291st mile cor.

A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 291 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 6 ins. dia. bears N. 8½° E. 100 lks. dist. marked Colo., 291 M., B.T.

A pine tree 18 ins. dia. bears S. 29° E. 150 lks. dist. marked N.M., 291 M., B.T.

A cedar tree 10 ins. dia. bears S. 43° 30′ W. 124 lks. dist. marked N.M., 291 M., B.T.

A pinon tree 7 ins. dia. bears N. 48½° W. 54 lks. dist. marked Colo., 291 M., B.T.

This cor. stands on NW. side of rocky ravine, about 30 ft. deep, course NE.

Alt. 6700 ft.

Temp. 62°.

——292nd mile——

S. 89° 59′ E. on the tangent to the parallel. Descend.

3.30 Bottom of dry, rocky ravine, course NE.

10.00 Leave timber, bears N. and S.

27.20 On south wall of canon, bears NW. and SE.

Thence by stadia measurement,

Angle 2°—Rod 11.50 ft. double=23.00 ft.×.9988=2297.24 ft.+C.=1.15 ft.=2298.39 ft.=34.82 chs.+27.20 chs.=62.02 chs.

6000 ft. 45.00 Bottom of Long Canon, course SE.

62.02 Stadia point on N. wall on canon, bears NW. and NE.
Angle 5°—Rod 11.00 double=2200 ft.×.9924 =2183.28 ft.+C.=1.14 ft.=2184.42 ft.=33.20 chs.+62.02 chs.=95.22 chs.—80.00 chs.= 15.22 chs. on 293rd mile.

80.00 Comes on rocky slope of canon wall.
I advance this cor.
Land, rough and broken, by deep canon.
Soil, sandy and rocky, 3rd rate.
Vegetation, pine and pinon timber.
Oak, aspen and pinon brush.

——293rd mile——

S. 89° 59' E. on the tangent to the parallel.

15.22 Stadia point, thence by tape measurement,
6300 ft. 16.00 N. 4 lks.+Correction 36 lks. N.=40 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 292nd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 292.2 M., stamped in the center.
Raised a mound of stone 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
This cor. on rocky SE. slope in canon, about 100 ft. above bottom.
No bearing trees.
Alt. 6300 ft.
Temp. 70°.

26.00 Darling's 40th mile cor. bears S. about 5 chs. dist.
A sandstone 18x10x7 ins. in stone mound, marked C. on N., 40 M. on E., N. M. on S. 1868 on W.
I destroyed this cor.

26.10 Stadia measurement from this point,
Angle 7°+Rod 9.40 ft. double=1880 ft.× .9851=1851.99 ft.+C.=1.14 ft.=1853.13 ft.= 28.07 chs.+26.10 chs.=54.17 chs.

47.00 Bottom Long Canon, where it is joined by canon from SW.; course NE.

54.00 On wall of canon about 300 ft. above bottom, bears N. and S. Enter pinon timber, bears N. and S.

64.17 Stadia point, thence by tape measurement,

61.10 Leave timber, bears N. and S.

Difference between measurements of 35.93 chs. by 2 sets of chainmen is 2 lks., position of middle point,

By 1st set 35.94 chs.,

By 2nd set 35.92 chs.; the mean of which is 35.93 chs. + 28.07 chs., stadia = 64.00 chs. from last cor. + 16.00 chs. = 80.00 chs.

6300 ft. 80.00 N. 7 lks. + Correction 54 lks. N. = 61 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 293rd mile cor.

Abrass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 293 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post

Pits impracticable.

No trees within limit.

Land, rough and broken.

Soil, rocky and sandy, 3rd rate.

Vegetation, pinon timber; oak and piror brush.

——294th mile——

S. 89° 58′ E. on the tangent to the parallel.

15.00 Bottom dry ravine about 100 ft. deep, course N.

6300 ft. 38.50 On south wall of Long Canon, bears NW. and SE.

Thence by stadia,

Angle 10°—Rod 7.40 double = 1480 ft. × .9698 = 1433.35 ft. + C. = 1.13 ft. = 1436.43 ft. = 21.76 chs. + 38.50 chs. = 60.26 chs.

60.26 Stadia point, thence by tape measurement,

75.00 Bottom of Long Canon, in creek bed, water in holes in bend, from NW. to NE.
Difference between measurements of 58.24 chs. by 2 sets of chainmen is 6 lks., positi n of middle point,
By 1st set 58.27 chs.,
By 2nd set 58.21 chs.; the mean of which is 58.24 chs.+21.76 chs., stadia = 80.00 chs
6000 ft. 80.00 N. 12 lks. +Correction 72 lks N.=84 lks N. from the tangent,
This point for cor, comes in bed of creek, im practicable to establish at that point. I therefore, set it South 115 lks. from its true place.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for witness cor. for 294th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and WC. 294 M. stamped in the enter.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A cottonwood tree 10 ins. dia. bears S. 83½ E. 382 lks. dist., marked N.M., W.C. 294 M., B.T.
A cottonwood tree 6 ins. dia. bears N. 64° W. 225 lks. dist. marked Colo., W.C. 294 M., B.T.
No other trees suitable for bearing trees.
This witness cor. stands in canon on S. bank of the creek.
Land, rough and broken.
Soil, rocky, sandy loam, 3rd rate.
Vegetation, scrub cedar and pinon and cottonwood timber; oak, willow and soft maple brush.
Alt. 6000 ft.
Temp. 75°.

——295th mile——

S. 89° 57' E. on the tangent to the parallel.

	3.90	Creek in Long Canon, water in holes, course SE.
	18.00	Same creek, dry bed 20 lks. wide, course NE.
	38.00	Cabin about 2 chs. S.
5900 ft.	40.90	Same creek, water in holes, course SE.
6050 ft.	65.00	On rocky spur, slope S. about 150 ft. above creek bottom.
		Descend.
	75.00	Foot of hill bears NE. and SW.; leave timber and brush.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is 80.00 chs.
5900 ft.	80.00	N. 19 lks.+Correction 90 lks. N.=109 lks. N. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 295th mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 295 M. stamped in the center. Dug pits 36x36x18 ins. N., E., S. and W. of the cor. 6 ft. dist.
		Raised a mound of earth 5 ft. base, 2 ft. high around the post.
		This cor. on flat north of creek.
		No bearing trees.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, pinon and aspen timber. Aspen, oak and willow brush.
		Alt. 5900 ft.
		Temp. 75°.

——296th mile——

S. 89° 57′ E. on the tangent to the parallel.

	21.15	On low spur, slope S.
		Stadia measurement from this point,
		Angle 15°+Rod 6.50 double=1300 ft.×.9330

=1212.90 ft. + C. -1.11 ft. =1214.01 ft. =18.39 chs. +21.15 chs. =39.54 chs.

24.80 Darling's 37th mile cor., bears S. 1.94 chs. dist.
A sandstone 18x10x8 ins. in stone mound. I destroyed this cor. The first one I have been able to find since passing his 40th mile.

5800 ft. 26.00 Bottom of rocky canon, comes from NE.
Ascend steep over rocks and brush.

38.50 Foot of wall about 75 ft. high, bears NE. and SW.

39.54 Top of wall, bears NE. and SW.
Stadia point, thence by tape measurement; ascend.

6250 ft. 49.00 Top of mesa bears N. and S.; enter scattering timber and brush, bears N. and S.
Difference between measurements of 64.61 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 61.63 chs.
By 2nd set 61.59 chs.; the mean of which is 61.61 chs. +18.39 chs., stadia =80.00 chs.

6200 ft. 80.00 N. 27 lks. +Correction 108 lks. N. =135 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 296th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 296 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Lone tree on N. end of long butte bears N. 80° 28′ E.
E. face of wall across canon bears S. 2° 25′ E.
This cor. stands on high mesa at head of little gulch, course S.
Land, rolling and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass; scattering pinon and cedar timber; oak and pinon brush.

Alt. 6200 ft.
Temp. 76 .

——297th mile——

S. 89° 56' E. on the tangent to the parallel.
Over gently rolling table or mesa land.

24.00 Darling's 36th mile cor., bears S. 1 ch. dist.
A sandstone 16x8x6 ins. marked C. on N. 36 M. on E., N.M. on S., and 1868 on W. faces.
I destroyed this cor.

26.00 Leave oak brush, bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.,
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

6150 ft. 80.00 N. 37 lks. + Correction 126 lks. N. = 163 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 297th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 297 M. stamped in the center. Dug pits 36x36x18 ins. N., E., S. and W. of cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A round peak on mesa bears S. 48° W. about 10 chs. dist.
A timbered cone on high ridge bears N. 52° E. about 6 miles dist.
Land, gently rolling mesa.
Soil, sandy loam 3rd rate.
Vegetation, grass and soapweed.
Patches of oak brush on W. end of mile.
Alt. 6150 ft.
Temp. 75°.

——298th mile——

S. 89° 55' E. on the tangent to the parallel.
Over nearly level mesa.

24.30 Darling's 35th mile cor., 70 lks. S.

I destroyed this cor.

59.85 Wagon road bears NW. and SE.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.

6150 ft. 80.00 N. 49 lks.+Correction 144 lks N.=193 lks. N. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 298th mile cor.

A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 298 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high, around the post. Pits impracticable.

Top of round peak on mesa bears S. 51° W. about 30 miles dist.

North salient of Raton plateau bears N. 88° W.

Land, mesa.

Soil, sandy loam, 3rd rate.

Vegetation, grass.

Alt. 6150 ft.

Temp. 70°.

——299th mile——

S. 89° 55′ E. on the tangent to the parallel.

9.10 On low spur, slope S., thence by stadia measurement.

Angle 7°+Rod 7.20 ft. double=1440 ft.× .9851=1418.54 ft.+C.=1.14 ft.=1419.68 ft.= 21.51 chs.+9.10 chs.=30.61 chs.

24.30 Darling's 34th mile cor. on this line. I destroyed this cor.

26.50 Foot of lava wall bears N. and S.

6350 ft. 30.61 Stadia point on top of wall 100 ft. high, bears N. and S.

Top of high butte that extends N. about ½ mile and S. about 15 chs. (Hardesty Butte.)

6350 f.. 38.08 On top of wall bears N. and S.; east side top of long butte.

Thence by stadia measurement; descend.

Angle 11°—Rod 6.65 ft. double=1330×.9636 =1281.59 ft.+C.=1.13 ft.=1282.72 ft.=19.43 chs.+38.08 chs.=57.51 chs.

57.51 Stadia point,
Angle 9°—Rod 7.00 ft. single=700 ft.×.9755 =682.85 ft.+C.=1.13 ft.=683.98 ft.=10.36 chs.+57.51 chs.=67.87 chs.

64.00 Dry gulch, course NE.

64.50 Graded wagon road, bears NE. and SW.

67.87 Stadia point, on spur, slope NE.
Angle 9°—Rod 10.70 ft. double=2140 ft.×.9755=2087.57 ft.+C.=1.13 ft.=2088.70 ft.=31.64 chs.+67.87 chs.=99.51 chs.—80.00 chs. =19.51 chs. on 300th mile.

80.00 Comes on rocky and brushy E. slope.
I advance this cor.
Land, rough and mountainous, broken by lava cliffs.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering cedar and pinon timber.
Pinon and oak brush.

——300th mile——

S. 89° 54′ E. on the tangent to the parallel.

19.51 Stadia point, thence by tape.

5500 ft. 20.00 N. 65 lks.+Correction 166 lks. N.=231 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 299th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 299.25 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post.
Pits impracticable.
A pinon tree 10 ins. dia. bears S. 4° 20′ E. 432 lks. dist. marked N.M., 299.25 M., B.T.
A pinon tree 12 ins. dia. bears S. 70½° E. 395 lks. dist. marked N.M., 299.25 M., B.T.
George Hardesty's windmill in front of his house bears N. 35° E. about 20 chs. dist.

This cor. stands on N. slope near foot of hill.
April 22nd, 1903.

I examine the transit and compare the steel tapes with the standard, find the instrument in adjustment and tapes of correct length.

24.00 Darling's 33rd mile cor. 1 ch. N. of tangent, a X mark on a rock and a stone monument beside it.
I destroyed this cor.

5450 ft. 27.00 Foot of hills; leave timber, bears S. and N. about 3 chs. then NW.; thence across little valley.

28.50 Deserted cabin about 3 chs. S.

31.30 Dry bed of water course, 30 lks. wide, course S.

33.25 Wagon road bears N. and S.

5450 ft. 60.00 Foot of hills bears NE. and SW.; leave valley, enter brush; ascend.
Difference between measurements of 60.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 60.01 chs.
By 2nd set 59.99 chs.; the mean of which is 60.00 chs., from last cor.+20.00 chs.=80.00 chs.

5800 ft. 80.00 N. 76 lks.+Correction 180 lks. N.=256 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 300th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 300 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high around the post.
No bearings.
This cor. stands on steep rocky NW. slope.
Land, valley and rough hills.
Soil, sandy loam, 2nd and 3rd rate.
Vegetation, grass and oak and pinon timber and brush.

Alt. 5800 ft.
Temp. 72°.

—301st mile—

S. 89° 53′ E. on the tangent to the parallel.

19.00 Bottom of rocky gulch, course NE.

6100 ft. 23.00 On mesa bears NE. and SW.; enter timber and brush, bears NE. and SW.

24.50 Darling's 32nd mile cor. about 2 chs. N. I destroy this cor.

36.90 Darling's astronomical monument No. 1. 2.10 chs. north of the tangent. Sandstone shaft firmly set 11x14 ins. 4 ft. above ground marked COLORADO on N. 1868 on E. NEW MEXICO on S. and 37° N.L. on W. faces.
I destroy this monument.

43.30 Wire fence bears N. and S. about 1 ch. N. to fence cor., thence fence runs east.

78.00 Bottom of box canon about 150 ft. deep, course S.

80.00 Comes on slope of canon wall.
I advance this cor.
Land, rolling mesa, and broken by canons.
Soil, sandy and rocky, 3rd rate.
Vegetation, pine and pinon timber, oak and pinon brush.

—302nd mile—

S. 89° 53′ E. on the tangent to the parallel; ascend.
Difference between measurements of 88.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 88.05 chs.,
By 2nd set 87.95 chs.; the mean of which is 88.00 chs.—80.00 chs.=8.00 chs. on 302nd mile.

6000 ft. 8.00 N. 94 lks.+Correction 200 lks. N.=294 lks. N from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for 301st mile cor.
Abrass cap on the top of the pipe has raised letters Colo. on N., N.M. on S., and 301.1 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pinon tree 6 ins. dia. bears S. 41° W. 293 lks. dist. marked N.M., 301.1 M., B.T.
A pinon tree 12 ins. dia. bears N. 54° 40' W. 364 lks. dist., marked Colo., 301.1 M., B.T.
No other trees within limit.
Leave timber and brush, bears N. and S.
Alt. 6000 ft.
Temp. 80°.

24.50 Darling's 31st mile cor. about 2 chs. N.
I destroy this cor.

27.00 Top of ridge bears NE. and SW.
Difference between measurements of 72.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 72.02 chs.,
By 2nd set 71.98 chs.; the mean of which is 72.00 chs., from last cor. +8.00 chs. =80.00 chs.

6050 ft. 80.00 N. 110 lks. +Correction 216 lks. N. =326 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 302nd mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 302 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of cor. 6 ft. dist.
Raised a mound of earth 5 ft. base, 2 ft. high around the post.
A conical butte on high mesa bears N. 60° 11' W.
N. end of Hardesty butte bears N. 83° 58' W.
Land, rolling.

Soil, sandy loam, 3rd rate.
Vegetation, grass; scattering pinon timber; oak and pinon brush.
Alt. 6000 ft.
Temp. 80°.

——303rd mile——

S. 89° 52' E. on the tangent to the parallel

24.50 Darling's 30th mile cor. about 2 chs. N.
I destroyed this cor.

6100 ft. 34.00 Top of ridge, bears NE. and SW.

64.00 Thence by stadia measurement; enter brush and scattering timber, bears N. and S.
Angle 8'—Rod 9.20 ft double=1840 ft.× .9806=1804.30 ft.+C.=1.14 ft.=1805.44 ft.=27.35 chs.+64.00 chs.=91.35 chs.—80.00 chs.=11.35 chs. on 304th mile.

71.00 Bottom of dry canon, 300 ft. deep, course NE.

80.00 Comes in rocky and brushy hillside.
I advance this cor.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass; cedar and pinon timber. Oak brush.

——304th mile——

S. 89° 52' E. on the tangent to the parallel.

11.35 Stadia point, thence by tape measurement. Difference between measurements of 64.65 chs. by 2 sets of chainmen is 8 lks., position of middle point,
By 1st set 64.69 chs.,
By 2nd set 64.61 chs.; the mean of which is 64.65 chs.+stadia 27.35 chs.=92.00 chs.—80.00 chs.=12.00 chs. on 304th mile.

5800 ft. 12.00 N.132 lks.+Correction 237 lks. N.=369 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 303rd mile cor.
A brass cap on the top of the pipe has raised

letters Colo. on N., N.M. on S. and 303.15 M. stamped in the center.
Raised a mound of stone 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
Alt. 5800 ft.
Temp. 80°.

13.00 Bottom of dry canon, course NE.
Ascend.

17.60 Top of rocky spur, slope S.; descend.

22.00 Bottom of main canon, course N.; ascend.

6000 ft. 48.00 On E. wall of canon, bears NW. and SE.

64.40 Top of ridge, bears N. and S.
Thence by stadia.
Angle 2°—Rod 12.55 ft. double=2510 ft.× .9988=2506.99 ft.+C.=1.15 ft.=2508.14 ft.=38.00 chs.+64.40 chs.=102.40 chs.—80.00 chs. =22.40 chs. on 305th mile.

80.00 Comes in rocky canon 250 ft. deep, course NW.
I advance this cor.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering pinon timber; oak and pinon brush.

——305th mile——

S. 89° 51′ E. on the tangent to the parallel.

22.40 On N. wall of canon, bears NW. and SE.
Stadia point, thence by tape measurement,
Difference between measurements of 54.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 54.02 chs.,
By 2nd set 53.98 chs.; the mean of which is 54.00 chs.+38.00 chs., stadia=92.00 chs. from last cor.+12.00 chs.=104.00 chs.—80.00 chs.=24.00 chs. on 305th mile cor.

5000 ft. 24.00 N. 157 lks.+Correction 257 lks. N.=414 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for 304th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 304.3 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
A cedar tree 10 ins. dia. bears N. 42½° W. 120 lks. dist., marked Colo., 304.3 M., B.T.
No other trees within limit.

24.50 Darling's 28th mile cor. about 3 chs. N. from the tangent.
Difference between measurement of 56.00 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 56.03 chs.,
By 2nd set 55.97 chs.; the mean of which is 56.00 chs., from the last cor.+24.00 chs.—80.00 chs.

6000 ft. 80.00 N. 172 lks.+Correction 270 lks. N.—442 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 305th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 305 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
North end of Hardesty butte bears N. 87¼° W.
Black Peak bears S. 76½° W.
Land, rolling and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass; oak brush; and scattering pinon timber.
Alt. 6000 ft.
Temp. 79°.

——306th mile——

S. 89° 50′ E. on the tangent to the parallel.

6050 ft. 12.00 Top of high ridge bears NE. and SW.; descend.

27.09 Top of rocky bluff, bears NE. and SE., overlooking Cimarron Valley.

Thence by stadia measurement,

Descend.

Angle 6°—Rod 12.65 double=2530 ft.×.9891 =2502.42 ft.+C.=1.14 ft.=2503.56 ft.=37.93 chs.+27.09 chs.=65.02 chs.

65.02 Stadia point,

Angle 2°—Rod 11.20 ft. double=2240 ft.× .9988=2237.31 ft.+C.=1.15 ft.=2238.46 ft.= 33.91 chs.×65.02 chs.=98.93 chs.—80.00 chs. =18.93 chs. on 307th mile.

80.00 Comes on rough, rocky and brushy SE. slope.

I advance this cor.

Land, rough and broken.

Soil, sandy and rocky, 3rd rate.

Vegetation, scattering pinon timber; oak and pinon brush.

——307th mile——

S. 89 50' E. on the tangent to the parallel. Descending.

18.93 Stadia point, thence by tape measurement,

5600 ft. 20.00 N. 202 lks.+Correction 292 lks. N.=494 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 306th mile cor. A brass cap on the top of the pipe has raised letters, Colo on N. N.M. on S. and 306.25 M. stamped in the center.

Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.

Pits impracticable.

42.35 Foot of bluff, enter Cimarron valley, bears NE. and SW.

Leave brush, bears NE. and SW.

Difference between measurements of 60.00

chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 60.01 chs.,
By 2nd set 59.99 chs., the mean of which is 60.00 chs. from last cor.+20.00 chs.=80.00 chs.

5400 ft. 80.00 N. 221 lks.+Correction 306 lks. N.=527 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 307th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S., and 307 M. stamped in the center.
Dug pits 36x36x18 ins. N., S., E. and W. from the cor. 6 ft. dist.
Raised a mound of earth 5 ft. base, 2 ft. high around the post.
A monument of gray, cone-shaped peak in edge of valley bears N. 82° W. about ½ mile dist.
Point of lava rock on top of sandstone cliff bears N. 38° 30′ W. about 1 mile dist.
Land, rough slope and valley.
Soil, sandy loam, 3rd rate.
Vegetation, grass and soapweed in valley; oak and pinon brush on slope.
Alt. 5400 ft.
Temp. 80°.

——308th mile——

S. 89° 49′ E. on the tangent to the parallel.
Over gently rolling valley land.

17.00 Cabin about 3 chs. S.

64.15 Dry bed of Covert Canon Creek, 80 lks. wide. water in holes, course S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing, the mean is 80.00 chs.

5300 ft. 80.00 N. 247 lks.+Correction 324 lks. N.=571 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom, 2 ft. in the ground for 308th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 308 M. stamped in the center.
Dug pits 36x36x18 ins. S., N., E. and W. from this cor. 6 ft. dist.
Raised a mound of earth 5 ft. base, 2 ft. high around the post.
Monument on round, red butte in valley bears N. 5° 2′ E.
S. salient of N. bluff bears N. 75° 52′ E.
Monument on gray cone in valley bears N. 53° 33′ W.
This cor. stands under E. and W. wire fence, that is supposed to be on the Darling line, though I have not been able to find corners along this part of the valley bearing the Darling marks.
Land, gently rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass and cactus.
Alt. 5300 ft.
Temp. 76°.

June 23rd, 1903.
I examine the transit and compare the steel tapes with the standard, find all correct and in adjustment.

—309th mile—
S. 89° 48′ E. on the tangent to the parallel.
Over gently rolling land.
78.50 Dry gulch, course SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.,
By 2nd set 79.99 chs., the mean of which is 80.00 chs.
5275 ft. 80.00 N. 275 lks. + Correction 342 lks. N. = 617 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 309th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S., and 309 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high around the post. Pits impracticable.
A cedar tree 14 ins. dia. bears S. 6° 20′ W. 705 lks. dist. marked N.M., 309 M., B.T.
A cedar tree 14 ins. dia. bears S. 29° W. 496 lks. dist. marked N.M., 309 M., B.T.
Land, gently rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass and cactus.
Alt. 5275 ft.
Temp. 70°.

Having previously examined the transit and found it to be in perfect adjustment,
At the point for the 309th mile cor.,
On June 2nd, 1903, at 2h 49m A. M., l.m.t., I observe Polaris at Eastern elongation, and mark a point in the line so determined on a plug driven in the ground N. of my station.
At 6h 30m A.M., June 2nd, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station.
The magnetic bearing of this meridian is N. 12 40′ W.
This gives magnetic variation 12° 40′ E.
I now lay off an angle of 90° from this meridian from the N. to the E. for the tangent to the parallel.
In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

——310th mile——

East on the tangent to the parallel.

Over rolling land, along North edge of Cimarron Valley.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 80.02 chs.,
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

5300 ft. 80.00 N. .76 of a link+Correction 360 lks. N.=360.76 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 310th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M., on S. and 310 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
A cedar tree 12 ins. dia. bears S. 46° W. 530 lks. dist., marked N.M., 310 M., B.T.
No other trees within limit.
Land, rolling.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering pinon, grass and cactus.
Alt. 5300 ft.
Temp. 72°.

311th mile

S. 89° 59' E. on the tangent to the parallel.
Over rolling land, at foot of bluffs.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

5200 ft. 80.00 N. 3 lks.+Correction 378 lks. N.=381 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for the 311th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 311 M stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
A cedar tree 16 ins. dia. bears N. 31½° E. 227 lks. dist. marked Colo., 311 M., B.T.
A cedar tree 12 ins. dia. bears S. 70° E. 190 lks. dist. marked N .M., 311 M., B.T.
No other trees within limit.
Land, rolling.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass; cactus and scattering pinon timber and brush.
Alt. 5200 ft.
Temp. 74°.

——312th mile——

S. 89° 59′ E. on the tangent to the parallel.
Over rolling land, at foot of bluffs N. side of Cimarron Valley.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 80.02 chs.,
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

5150 ft. 80.00 N. 7 lks. + Correction 396 lks. N. = 403 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for the 312th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S., and 312 M. stamped in the center.
Raised a mound of stone, 5 ft. base 2 ft. high, around the post.
Pits impracticable.
Land, rolling.

Soil, sandy and rocky, 3rd rate.
Vegetation, grass; cactus and scattering pinon timber and brush.
Alt. 5150 ft.
Temp. 78°.

——313th mile——

S. 89° 58′ E. on the tangent to the parallel.
Stadia measurement,
Angle 6′ =Rod 8.90 double =1780 ft.×.9891 =1760.60 ft.+C. =1.14 ft. =1761.74 ft. =26.69 chs.

5150 ft. 18.75 Foot of bluffs bears NW. and SE.; leave Cimarron Valley, ascend over broken rock.

26.69 On spur, slope S.
Stadia point,
Angle 5′ +Rod 8.80 ft. double =1760 ft.× .9924 =1746.62 ft. +C. =1.14 ft. =1747.76 ft. =26.48 chs. +26.69 chs. =53.17 chs.

40.00 James McClash's house, about 50 chs. S. on river bottom..
Orchard and alfalfa field.

53.17 Stadia point, on spur, slope SE.
Angle 11′ +Rod 9.20 ft. double=1840 ft.× .9636=1773.02 ft. +C. =1.13 ft. =1774.15 ft.= 26.88 chs. +53.17 chs. =80.05 chs.—.05 chs.= 80.00 chs.

60.00 Bottom of rocky gulch, course SE.

77.00 Foot of lava wall about 200 ft. high, bears NW. and SE.

79.44 On top of lava wall about 700 ft. above the valley, bears NW. and SE.

5850 ft. 80.00 N. 12 lks. +Correction 414 lks. N. =426 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 313th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 313 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.

Pits impracticable.
A volcanic peak bears S. 62° 15′ W. about 30 miles dist.
A grey cone of sandstone bears S. 19° 45′ E. about 3 miles dist.
This cor. stands on top of high bluff.
Land, rough and broken.
Soil, sandy and rocky, 4th rate.
Vegetation, scattering oak and pinon brush.
Alt. 5850 ft.
Temp. 80°.

——314th mile——

S. 89° 57′ E. on the tangent to the parallel.
Across mesa.

23.54 Darling's 19th mile bears North 5.86 chs.
The first cor. bearing the Darling marks I have found East of his 28th mile cor.
I destroyed this cor.

30.12 On E. wall of mesa, bears NW. and SE.
Thence by stadia measurement,
Angle 12°—Rod 9.65 ft. double—1930 ft.×.9568—1846.62 ft.+C.—1.12 ft.—1847.74 ft.—27.99 chs.+30.12 chs.—58.11 chs.

58.11 Stadia point,
Angle 5°—Rod 9.44 single—944 ft.×.9924—936.83+C.—1.14 ft.—937.97 ft.—14.21 chs.+68.11 chs.—72.32 chs.

72.32 Stadia point, thence by tape measurement,

5330 ft. 78.00 Dry bed of stream, bottom of Jesus Canon, 50 lks. wide, course SE.; ascend.

5350 ft. 80.00 N. 19 lks.+Correction 432 lks. N.—451 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground, for the 314th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 314 M. stamped in the center
Raised a mound of stone, 5 ft. base, 2 ft high around the post.
This cor. on West edge of rocky gulch, that comes from NE.

Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering pinon timber; oak and aspen brush.
Alt. 5350 ft.
Temp. 80°.

——315th mile——

S. 89° 57′ E. on the tangent to the parallel.
Stadia measurement,
Angle 13′+Rod 9.00 ft. double=1800 ft.× .9494+1708.92 ft.+C.=1.12 ft.=17'0.04 ft.=25.91 chs.

.20 Bottom of rocky gulch, course SW.; ascend.

5830 ft. 25.91 Stadia point on wall of canon, bears NW. and SE. about 500 ft. above bottom of canon.
Enter scattering cedar and pinon timber, bears NW. and SE.
Thence by tape measurement,

80.00 Comes in head of rocky canon, course S.
I advance this cor.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering cedar and pinon timber; oak, pinon and cedar brush.

——316th mile——

S. 89° 56′ E. on the tangent to the parallel.
Difference between measurements of 62.09 chs. by 2 sets of chainmen is 6 lks., position of middle point.
By 1st set 62.12 chs.,
By 2nd set 62.06 chs.; the mean of which is 62.09 chs.+25.91 chs., stadia=88.00 chs.—80.00 chs.=8.00 chs. on 316th mile.

5800 ft. 8.00 N. 28 lks.+Correction 452 lks. N.=480 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4′ ft. long with flanges at the bottom 2 ft. in the ground for 315th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 315.1 M.

stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high around the post. Pits impracticable.
A pinon tree 7 ins. dia. bears N. 59° 30′ W. 68 lks. dist. marked Colo., 315.1 M., B.T.
A pinon tree 5 ins. dia. bears S. 1° W. 86 lks. dist., marked N.M., 315.1 M., B.T.
No other trees within limit.
Alt. 5800 ft.
Temp. 75°.

5800 ft. 21.91 On wall of canon, bears NW. and SE.
Thence by stadia,
Angle 18°—Rod 7.90 double=1580 ft.×.9045 =1429.11 ft.+C.=1.09 ft.=1430.20 ft.=21.67 chs.+21.91 chs.=43.58 chs.

23.00 Foot of wall about 300 ft. high, bears NW. and SE.

43.58 Stadia point,
Angle 2°—Rod 9.75 ft. double=1950 ft.× .9988=1947.66 ft.+C.=1.15 ft.=1948.81 ft.= 29.52 chs.+43.58 chs.=73.10 chs.

5200 ft. 53.00 Dry bed of stream 30 lks. wide, course SE. Bottom of Flat-Head Canon about 600 ft. below last cor. ascend. ;

73.10 On low spur, slope SW. ; ascend.
Angle 20°+Rod 7.45 double=1490 ft.×.8830 =1315.67 ft.+C.=1.08 ft.=1316.75 ft.=19.95 chs.+73.10 chs.=93.05 chs.—80.00 chs.= 13.05 chs. on the 317th mile.

80.00 Comes on rough slope of Canon wall.
I advance this cor.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering cedar and pinon timber; oak pinon and cedar brush.

——317th mile——

S. 89° 55′ E. on the tangent to the parallel.

10.00 Foot of wall about 200 ft. high, bears NE. and SW.

13.05 Stadia point on top of canon wall, bears NE. and SW.

Thence by tape measurement,

5775 ft. 16.00 N. 39 lks.+Correction 472 lks. N.=511 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom on bed rock for 316th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 316.2 M. stamped in the center.
Raised a mound of stone 5 ft. base 2½ft. high around the post. Pits impracticable.
This cor. stands in brush.
No trees within limit, suitable for bearing trees.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering cedar and pinon timber.
Oak, cedar and pinon brush.
Alt. 5775 ft.
Temp. 70°.

5700 ft. 43.00 Brow of bluff, bears NW. and SE.; descend.
Difference between measurements of 64.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
By 1st set 64.04 chs.,
By 2nd set 63.96 chs.; the mean of which is 64.00 chs., from last cor.+16.00 chs.=80.00 chs.

5400 ft. 80.00 N. 49 lks.+Correction 486 lks. N.=535 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 317th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 317 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
No bearing trees.
Land, rough and broken.

Soil, rocky and sandy, 3rd rate.
Vegetation, oak, cedar and pinon brush.
Alt. 5400 ft.
Temp. 70°

——318th mile——

S. 89° 55′ E. on the tangent to the parallel.
Ascend.

5600 ft. 30.00 On mesa, bears N. and S.

36.30 East edge of mesa, bears NW. and SW.; descend.

Thence by stadia measurement,
Angle 4°—Rod 9.60 ft. double=1920 ft.×.9951=1910.59 ft.+C.=1.15 ft.=1911.74 ft.=28.96 chs.+36.30 chs.=65.26 chs.

65.26 Stadia point,
Angle 8°—Rod 6.20 ft. double=1240 ft.×.9806=1215.94 ft.+C.=1.14 ft.=1217.08 ft.=18.44 chs.+65.26 chs.=83.70 chs.—80.00 chs.=3.70 chs. on the 319th mile.

80.00 Comes in dense brush on N. slope.
I advance this cor.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, oak, cedar and pinon brush; and scattering pinon timber.

——319th mile——

S. 89° 54′ E. on the tangent to the parallel.

3.70 Stadia point,
Thence by tape.

5100 ft. 4.00 N. 63 lks.+Correction 505 lks. N.=568 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 318th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 318.05 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post. Pits impracticable.

A pinon tree 8 ins. dia. bears S. 31¾° E. 94 lks. dist. marked N.M., 318.05 M., B.T.
A pinon tree 8 ins. dia. bears N. 70° W., 40 lks. dist. marked Colo., 318.05 M., B.T.
No other trees suitable for bearing trees.
This cor. stands on spur, slope N. about 75 ft. above bottom of canon.
Alt. 5100 ft.
Temp. 70°.

June 24th, 1903.

I examine the transit and compare the steel tapes with the standard, find all correct and in adjustment.

Descend.

22.00 Bottom of Canon, course SE.

24.50 Darling's 14th mile cor. bears N. about 6 chs. from the tangent. A sandstone 26x10x8 ins., marked C. on N., 14 M on E., N.M. on S. and 1868 on W. faces, in mound of stone. I destroyed this cor.

30.00 Point on spur, slope SE.

5000 ft. 36.00 Dry bed of stream, 30 lks. wide, course South.
Bottom of Miller's Canon.

49.27 On spur, slope S. Stadia measurement from this point,
Angle 19° + Rod 8.20 ft. double = 1640 ft. × .8940 = 1466.16 ft. + C. = 1.08 ft. = 1472.25 ft. = 22.23 chs. + 49.27 chs. = 71.50 ft.

71.50 Stadia point on wall of canon about 600 ft. above bottom of canon, bears NE. and SW.
Thence by tape measurement,
Difference between measurements of 53.77 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 53.78 chs.
By 2nd set 53.76 chs.; the mean of which is 53.77 chs. + 22.23 chs., stadia = 76.00 chs. from last cor. + 4.00 chs. = 80.00 chs.

5500 ft.	80.00	N. 76 lks.+Correction 522 lks. N.=598 lks. N. from the tangent, Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 319th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 319 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high, around the post. Pits impracticable. Land, rough and broken. Soil, sandy and rocky, 3rd rate. Vegetation, scattering cedar and pinon timber; oak, cedar and pinon brush. Alt. 5500 ft. Temp. 75°.
		320th mile
		S. 89° 53' E. on the tangent to the parallel.
5500 ft.	9.70	East edge of mesa bears NW. and SE. Thence by stadia measurement, Angle 12°—Rod 13.00 ft. double=2600 ft.×.9568=2487.68 ft.+C.=1.12 ft.=2488.80 ft.=37.71 chs.+9.70 chs.=47.41 chs.
	44.00	Foot of bluff bears NW. and SE. Enter Cimarron valley.
	47.41	Stadia point, thence by tape measurement, Difference between measurements of 42.29 chs. by 2 sets of chainmen is -ks., position of middle point, By 1st set 42.30 chs., By 2nd set 42.28 chs.; the mean of which is 42.29 chs.,+37.71 chs., stadia=80.00 chs.
4900 ft.	80.00	N. 92 lks.+Correction 540 ft. N.=632 lks. N. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 320th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 320 M. stamped in the center. Dug pits 36x36x18 ins. N., E., S. and W. of the cor. 6 ft. dist.,

and raised a mound of earth, 5 ft. base, 2 ft. high, around the post.
Point of cliff bears N. 14° 25′ E. about ½ mile dist.
Top of sandstone butte in valley bears S. 79° E. about 1 mile dist.
SE. salient of cliffs bears S. 14° W. about 1 mile dist.
Land, rough and broken, and valley.
Soil, sandy loam, 3rd rate.
Vegetation, grass and cactus in valley; and oak, cedar and pinon brush on slopes.
Alt. 4900 ft.
Temp. 82°.

——321st mile——

S. 89° 53′ E. on the tangent to the parallel.
Over gently rolling valley land.

10.25 Ledge of red sandstone about 15 ft. high, bears NE. and SW.

27.00 Darling's 12th mile cor., bears N. about 8 chs. dist.
I destroyed this cor.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 80.02 chs.,
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

4850 ft. 80.00 N. 110 lks.+Correction 558 lks. N.=668 lks. N. from the tangent,
Set temporary cor.
See page 410.
Land, gently rolling, valley.
Soil, sandy loam, 3rd rate.
Vegetation, grass and cactus.
Alt. 4850 ft.
Tem. 82°.

——322nd mile——

S. 89° 52′ E. on the tangent to the parallel.

38.30 Dry arroyo, course S.

	58.33	Stadia measurement, from this point, Angle 11° +Rod 8.05 ft. double=1610 ft. × .9636=1551.40 ft. +C.=1.13 ft.=1552.53 ft.= 23.52 chs.+58.33 chs.=81.85 chs.—80.00 chs. =1.85 chs. on the 323rd mile.
4850 ft.	60.00	Foot of bluff, bears NW. and SE.; ascend.
	80.00	Comes among big blocks of stone on steep SW. slope.
		I advance this cor.
		Land, valley and hillside.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and cactus in valley.
		Scattering oak, cedar and pinon brush on slope.

——323rd mile——

S. 89° 52′ E. on the tangent to the parallel.

	1.85	Stadia point, thence by tape.
		Difference between measurements of 60.48 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 60.49 chs.,
		By 2nd set 60.47 chs.; the mean of which is 60.48 chs.+23.52 chs., stadia=84.00 chs.— 80.00 chs.=4.00 chs. on 323rd mile.
5200 ft.	4.00	N. 130 lks.+Correction 576 lks. N.=706 lks. N. from the tangent.
		This offset places the point for this cor. over ridge on N. slope.
		Set temporary cor.
		Alt. 5200 ft.
		Temp. 82°.
		Descend.
4800 ft.	35.00	Foot of bluff bears NW. and SE.; enter Cimarron valley.
		Difference between measurements of 76.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
		By 1st set 76.04 chs.,
		By 2nd set 75.96 chs.; the mean of which is 76.00 chs. from last cor.+4.00 chs.=80.00 chs.

4800 ft.	80.00	N. 150 lks. + Correction 594 lks. N. = 744 lks. N. from the tangent, Set temporary cor. Land, rough slope and valley. Soil, sandy loam, 3rd rate. Vegetation, grass and cactus in valley. Pinon and oak brush on slope. Alt. 4800 ft. Temp. 80°.

——324th mile——

		S. 89° 51′ E. on the tangent to the parallel. Over gently rolling valley.
	.50	Wagon road, bears N. and S.
	2.00	Dry arroyo, course SE.
	31.00	Darling's 9th mile cor., bears N. about 9.00 chs. dist. I destroyed this cor. Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.
4875 ft.	80.00	N. 172 lks. + Correction 612 lks. N. = 784 lks. N. from the tangent, Set temporary cor. Land, gently rolling valley. Soil, sandy loam, 3rd rate. Vegetation, grass and cactus. Alt. 4875 ft. Temp. 75°.

——325th mile——

		S. 89° 50′ E. on the tangent to the parallel.
	6.20	Wagon road, bears NW. and SE.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point, By 1st set 80.01 chs., By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
4890 ft.	80.00	N. 196 lks. + Correction 630 lks. N. = 826 lks. N. from the tangent, Set temporary 325th mile cor., and astrono-

mical monument No. 7. This places this temporary monument 422 lks. S. of the 37th parallel, as determined by astronomical observations made on the nights of Nov. 3rd, 4th, and 7th, 1902. This being within the limit of 3″ of arc, allowed by the Hon. Commissioner.

See page 411.

Land, nearly level valley.
Soil, sandy loam, 3rd rate.
Vegetation, grass and sage.
Alt. 4890 ft.
Temp. 74°.

June 25th, 1903.

On the afternoon of June 6th, 1903, I carefully adjust the transit as to levels and collimation, and compare the steel tapes with the standard, and find them of correct length.

At the point for the temporary 325th mile cor., June 7th, 1903, at 2h 30m A. M., l.m.t., I observe Polaris at Eastern elongation, and mark a point in the line, so found, on a plug driven in the ground 10 chs. N. of my station.

At 7h 10m A. M., I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station.

The magnetic bearing of this meridian is N. 12° 45′ W.

This gives magnetic declination 12° 45′ E.

I now lay off an angle of 90° from the meridian, from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

——326th mile——

East on the tangent to the parallel.

9.13 Our temporary astronomical station 1.45 chs. N.

16.10 Dry bed of Sheep Pen Canon Creek, 20 lks. wide, course S.

25.00 Foot of hills bears NW. and SW.
Leave Cimarron valley; ascend.
Angle 14° + Rod 12.60 double = 2520 ft. × .9415 = 2372.58 ft. + C. = 1.11 ft. = 2373.69 ft. = 35.96 chs. + 25.20 chs. = 61.16 chs.

25.20 Stadia point, thence by stadia measurement.

32.20 Darling's 7th mile cor., bears N. 1.15 chs. dist.
A sandstone 28x12x4 ins. in pile of stone.
I destroy this cor.

61.16 Stadia point on top of wall, W. edge of high mesa, about 700 ft. above Cimarron Valley, bears NE. for about 10 chs., then NW. and S. of line bears SW.
Difference between measurements of 44.04 chs., by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 44.05 chs.,
By 2nd set 44.03 chs.; the mean of which is 44.04 chs. + 35.96 chs. = 80.00 chs.

5550 ft. 80.00 N. .76 of a link from the tangent,
Set a temporary cor.
Land, rough and broken and mesa.
Vegetation, grass and cactus.
Soil, sandy, 3rd rate.
Alt. 5550 ft.
Temp. 70°.

——327th mile——

S. 89° 59′ E. on the tangent to the parallel.
Over mesa land.

20.50 Head of draw, drains SW.

32.25 Darling's 6th mile cor. bears N. 130 lks. dist.
A lava stone 16x12x6 ins. marked C. on N., 6 M. on E., N.M. on S. and 1868 on W. faces.
I destroyed this cor.

All the Darling corners from here Eastward to the McComb cor. were found and the marks obliterated.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 80.02 chs.,
By 2nd set 79.98 chs., the mean of which is 80.00 chs.

5525 ft. 80.00 N. 3 lks. from the tangent.
Set temporary cor.
Land, mesa, gently rolling.
Soil, sandy, 3rd rate.
Vegetation, grass and cactus.
Alt. 5525 ft.
Temp. 70°.

——328th mile——

S. 89° 59′ E. on the tangent to the parallel.
Over mesa land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.,
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

5490 ft. 80.00 N. 7 lks. from the tangent.
Set temporary cor.
Land, gently rolling mesa.
Soil, sandy, 3rd rate.
Vegetation, grass and cactus.
Alt. 5490 ft.
Temp. 70°.

——329th mile——

S. 89° 58′ E. on the tangent to the parallel.
Over mesa land.
63.00 Head of rocky gulch, 50 ft. deep, course SE.
76.00 Head of rocky canon 75 ft. deep, course S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,

By 1st set 80.04 chs.,
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

5450 ft. 80.00 N. 12 lks. from the tangent,
Set temporary cor.
Land, gently rolling.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass, cactus, scattering cedar along gulches.
Alt. 5450 ft.
Temp. 72°.

June 7th, 1903.

I examine the transit, compare the steel tapes with the standard, find all correct and in adjustment.

——330th mile——

S. 89° 57′ E. on the tangent to the parallel.
20.00 Enter timber and brush.
30.00 Head of canon, course NE.
5300 ft. 50.00 On spur, slope NE.
5200 ft. 80.00 Comes in canon, bears S.
Impracticable to establish the cor at this point.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass, cedar and pinon timber; oak brush.
Alt. 5200 ft.
Temp. 70°.

——331st mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascend.
5350 ft. 8.00 N. 20 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long, with flanges at the bottom 2 ft. in the ground for the 330th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 330.1 M. stamped in the center.

Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
A cedar tree 6 ins. dia. bears S. 49½° E. 12 lks. dist. marked N.M., 330.1 M., B.T.
No other trees within limit.
This cor. stands on E. bluff about 110 ft. above bottom of canon, bears N. and S.
Alt. 5300 ft.
Temp. 70°.

20.00 Rocky canon about 100 ft. deep, course S.

41.23 A sandstone 16x10x6 ins. in what has once been a very large mound of earth about 10 ft. in dia., bears N. 2.05 chs. from the tangent.
This stone is marked 103° L. on N., N.M. 1874 and the word "Major" below on S.
This, I believe, to be the Col. Johnson monument.

57.00 Head of rocky canon, course SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 80.05 chs.,
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

5110 ft. 80.00 N. 27 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 331st mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 331 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high around the post.
Pits impracticable.
No bearings.
Land, mesa, somewhat broken.
Soil, sandy, 3rd rate.
Vegetation, grass, cactus; scrub cedar and pinon in the canons.
Alt. 5110 ft.
Temp. 70°.

332nd mile

S. 89° 56′ E. on the tangent to the parallel

1.53 Stadia measurement,
Angle 2′—Rod 8.15 double =1630 ft. × .9988 =1628.04 ft. + C. =1.15 ft. =1629.19 ft. =24.68 chs. + 1.53 chs. =26.21 chs.

17.00 Head of canon, course SE.

26.21 Stadia point,
Stadia measurement,
Angle 0° Rod 8.00 double =1600 ft. + C. =1.15 ft. =1601.15 ft. =24.26 chs. + 26.21 chs. =50.47 chs.

37.00 Bottom of canon, about 150 ft. deep, course SE.; ascend.

50.47 Stadia point on mesa. E. side of canon bears NW. and SE.
Thence by tape measurement,
Difference between measurements of 31.06 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 31.07 chs.
By 2nd set 31.05 chs.; the mean of which is 31.06 chs. + 48.94 chs. =80.00 chs.

5100 ft. 80.00 N. 37 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 332nd mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 332nd M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
No bearings.
This cor. stands on mesa about 1½ chs. S. of canon wall, that bears NW. and NE.
Land, mesa, broken by canons.
Soil, sandy, 3rd rate.
Vegetation, grass and cactus on mesa; scrub cedar in canons.
Alt. 5100 ft.
Temp. 70°.

——333rd mile——

S. 89° 55′ E. on the tangent to the parallel. Difference between measurements of 29.1 chs. by 2 sets of chainmen is nothing; the mean is 29.10 chs.

29.10 On wall of canon bears NE. and SW.
Thence by stadia measurement,
Angle 7°—Rod 6.70 double=1340 ft.×.9851 =1320.03 ft.+C.=1.14 ft.=1321.17 ft.=20.02 chs.+29.10 chs.=49.12 chs.

29.55 Capt. Macomb's monument, which was Darling's initial cor. bears N. 143 lks. from the tangent. The offset for this point being 41 lks., places the monument 93 lks. N. of the boundary line as established by me.
This monument consists of a pile of stone about 10 ft. in dia. and 6 ft. high, on top of which I found a stone 18x12x4 ins. marked 103 W.L.-1868. I obliterated the marks on this stone.

40.00 Bottom of canon about 300 ft. deep, course NE.
Ascend.

49.12 Stadia point on spur, slope N., about 100 ft. above bottom of canon.
Stadia measurement,
Angle 8°—Rod 7.50 double=1500 ft.×.9806 ft.=1470.90 ft.+C.=1.14 ft.=1472.04 ft.=22.30 chs.+49.12 chs.=71.42 chs.

4600 ft. 68.00 Bottom of canon, course S.

71.42 Stadia point,
Angle 18°+Rod 10.50 single=1050 ft.×.9045 =949.72 ft.+C.=1.09 ft.=950.81 ft.=14.40 chs.+71.42 chs.=85.82 chs.—80.00 chs.=5.82 chs. on 334th mile.

80.00 Comes on steep slope of canon wall. Impracticable to establish the cor. at this point.
Land, broken, rough and rocky.
Soil, rocky and sandy, 3rd rate.
Vegetation, grass and sage; scrub cedar and pinon.

——334th mile——

S. 89° 55′ E. on the tangent to the parallel.

5.82 Stadia point on canon wall, bears N. and S. Thence by tape measurement,

4900 ft. 6.40 N. 50 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 10 ins. in the ground to bed rock, for 333rd mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S., and 333.08 stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high, around the post. Pits impracticable.
A cedar tree 7 ins. dia. bears N.4½° E. 109 lks. dist. marked Colo 333.08 M., B.T.
A pinon tree 5 ins. dia. bears S. 74½° E. 74 lks. dist. marked N.M., 333.08 M., B.T.
No other trees within limits suitable for bearing trees.
Alt. 4900 ft.
Temp. 68°.
Thence by stadia measurement; descend.
Angle 8°—Rod 9.33 double=1866 ft.×.9806 =1829.80 ft.+C.=1.14 ft.=1830.94 ft.=27.74 chs.+6.40 chs.=34.14 chs.

34.14 Stadia point, at foot of hill about 200 ft. below cor. bears NW. and SW. Thence by tape measurement, across mouth of little valley from SW.

70.90 Point on E. slope near foot of butte.
Difference between measurements of 45.86 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 45.88 chs.,
By 2nd set 45.84 chs.; the mean of which is 45.88 chs.+34.13 chs.=80.00 chs.

4640 ft. 80.00 N. 62 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 334th mile cor.
A brass cap on the top of the pipe has raised

letters, Colo. on N., N.M. on S. and 334 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high around the post. Pits impracticable.
A x on a sandstone 15x10x8 ft. above ground bears S. 31° W. 38 lks. dist., marked N.M., 334 M., B.O.
A x cross on a sandstone 20x12x8 ft. above ground bears N. 6° 10′ E. 200 lks. dist. marked Colo., 334 M., B.O.
Land, rough and broken.
Soil, sandy, 3rd rate.
Vegetation, grass, sage, cactus; scattering scrub cedar and pinon brush.
Alt. 4640 ft.
Temp. 68°.

June 8th, 1903.

I examine the transit, compare the steel tapes with the standard, and find [redacted] correct and in adjustment.

——335th mile——

S. 89° 54′ E. on the tangent to the parallel. Descending gradually across valley.
Enter Carriso Valley, bears NE. and SW.

71.00 A stone monument 12x12x24 ins. above ground firmly set, bears North 185 lks. from the tangent. Our offset for this point is 75 lds. This would place this monument 110 lks. N. of the boundary line as run by me. This monument is marked "Colo." on N., C.M. on E., "NE. cor N.M." on S. and "C.C. 1900 on W., of the cor. A dressed sandstone shaft 15 ins. square, 4½ ft. above ground and firmly set bears N. from the same point on the tangent 15.93 chs.
This shaft is marked COLORADO on N., 37 N. L. on E., 103 W. L. on S., and 1881 on W.
I left both these monuments as I found them.

[redacted]

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.,
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

4600 ft. 80.00 N. 76 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 335th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., Okla. on S. and 335 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base, 2 ft. high, around the post.
N. edge of round butte bears S. 89° E. about 3 miles dist. Small round butte in valley bears S. 63° 10′ W. about 2 miles dist.
Land, gently rolling, valley.
Soil, sandy, 2nd rate.
Vegetation, grass and cactus.
Alt. 4600 ft.
Temp. 60°.

1902.

WE HEREBY CERTIFY That we assisted HOWARD B. CARPENTER, United States Surveyor and Astronomer, in re-surveying all parts or portions of the South Boundary of the State of Colorado which are represented in the foregoing field notes as having been re-surveyed by him and under his direction; and that said survey has been in all respects, to the best of our knowledge and belief, well and faithfully surveyed, and the corner monument established according to instructions furnished by the Commissioner of the General Land Office.

(Signed) L. B. NEIGHBOUR, Transitman.
E. POTTER LOCKWOOD, Chainman.
WALTER STONE, Chainman.
ERNEST G. SPINNEY, Chainman.
LINUS OLSON, Chainman.
C. D. CARPENTER, Moundman.

J. W. MILLER, Moundman.
his
CHAS, X WINDQUEST, Moundman.
mark
GROVER BOWMAN, Axman.
O. J. Bowman, Axman.
Wm. D. SKINNER, Rodman.
J. L. WENTZ, Flagman.
J. G. MYERS, Flagman.

Subscribed and sworn to before me this 15th day of December, 1902.

(Signed) HOWARD B. CARPENTER,
U. S. Surveyor and Astronomer.

1903.

FINAL OATHS OF ASSISTANTS.

WE HEREBY CERTIFY That we assisted HOWARD B. CARPENTER, United States Surveyor and Astronomer, in re-surveying all those parts or portions of the South Boundary of the State of Colorado which are represented in the foregoing field notes as having been re-surveyed by him and under his direction; and that said survey has been in all respects, to the best of our knowledge and belief, well and faithfully surveyed, and the corner monuments established according to instructions furnished by the Commissioner of the General Land Office.

(Signed) OSCAR McCLELLAN, Transitman.
WALTER STONE, Chainman.
Wm. L. HORTON, Chainman.
C. HOLLIDAY, Chainman.
POTTER LOCKWOOD, Chainman.
G. D. CARPENTER, Moundman.
his
CHAS. X WINDQUIST, Moundman.
mark
LINUS OLSON, Moundman.
HARRY WEIMER, Axman.
SILAS S. WEIMER, Axman.
ED. P. BLANCHARD, Rodman.
FRED F. LOCKWOOD, Flagman.
Wm. A. PINCKARD, Flagman.

Subscribed and sworn to before me this 21st day of July, 1903.

(Signed) HOWARD B. CARPENTER,
U. S. Surveyor and Astronomer.

1903.

FINAL OATH OF ASSISTANTS.

We, E. P. Blanchard, F. E. Wright and Andrew Ferrara, do solemnly swear that we assisted Howard B. Carpenter, U. S. Surveyor and Astronomer, in resetting all those monuments and mile corners on that portion of the 37th parallel of North Latitude, in the re-survey of the South Boundary of the State of Colorado, represented in the foregoing field notes as having been reset by him, and that the said monuments and mile corners, have been established in accordance with the Manual and his special instructions, to the best of our knowledge and belief.

(Signed) ED. P. BLANCHARD, Chainman.
F. E. WRIGHT, Chainman.
his
ANDREW X FERRARA, Moundman.
mark

Subscribed and sworn to before me this Twenty-ninth day of October, 1903.

(Signed) HOWARD B. CARPENTER,
U. S. Surveyor and Astronomer.

FINAL OATH OF U. S. SURVEYOR AND ASTRONOMER.

I, Howard B. Carpenter, United States Surveyor and Astronomer, do solemnly swear that in pursuance of a contract with Hon. Binger Herman, Commissioner of the General Land Office, bearing date of July 7th, 1902, and in strict conformity to the laws of the United States and the instructions furnished me by Acting Commissioner, W. A. Richards, I have well, faithfully and truly, in my own proper person, resurveyed, re-marked and re-established the boundary line between the State of Colorado and the Territory of New Mexico, —and the State of Colorado and the Territory of Oklahoma,

—the same being that portion of the parallel of thirty-seven degrees North Latitude, lying between the twenty-fifth and the thirty-second degrees of West Longitude from Washington; that I have destroyed such evidences as I have been able to find, of corners monuments originally established on said line by E. N. Darling, U. S. Surveyor.

And I do further solemnly swear that all the corners of said re-survey have been established and perpetuated in strict accordance with the Manual of surveying instructions and the special written instructions of the Hon. Acting Commissioner and in specific manner described in the field notes and that the foregoing are the true field notes and astronomical notes of such re-survey and should any fraud be detected I will suffer the penalty of perjury, under the provisions of an act of Congress approved August 8th, 1846.

(Signed) HOWARD B. CARPENTER,
United States Surveyor and Astronomer.

Subscribed and sworn to before me this 5th day of January, 1904.

(SEAL) (Signed) LOMI KIRK,
Clerk of the United States Circuit Court for the District of Wyoming.

DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE,
February 25th, 1904.

The foregoing field notes of the re-survey of the Boundary Line between the State of Colorado and the Territories of New Mexico and Oklahoma, executed by Howard B. Carpenter, U. S. Surveyor, under his contract with the Commissioner of the General Land Office, dated July 7th, 1902, having been examined and found correct are hereby approved.

(Signed) W. A. RICHARDS,
Commissioner.

DEPARTMENT OF THE INTERIOR)
U. S. Surveyor General,)
Santa Fe, New Mexico)

I, Lucius Dills, U. S. Surveyor General for the District of New Mexico, hereby certify that the foregoing 434 pages

of type-written matter is a true and correct copy of the Duplicate Original field notes now on file in my office, of the survey of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, as executed by Howard B. Carpenter, U. S. Surveyor, under instructions from the Commissioner of the General Land Office; and that this Copy is a full and complete record of such survey except the Astronomical Data and Calculations upon which the surveyor based the establishment of the Astronomical Monuments placed by him at intervals along and upon said line of survey.

Witness my hand and Official Seal, at my office in the City of Santa Fe, State of New Mexico, on this the 8th day of November, 1918.

(*SEAL*)

LUCIUS DILLS,
U. S. Surveyor General for New Mexico.